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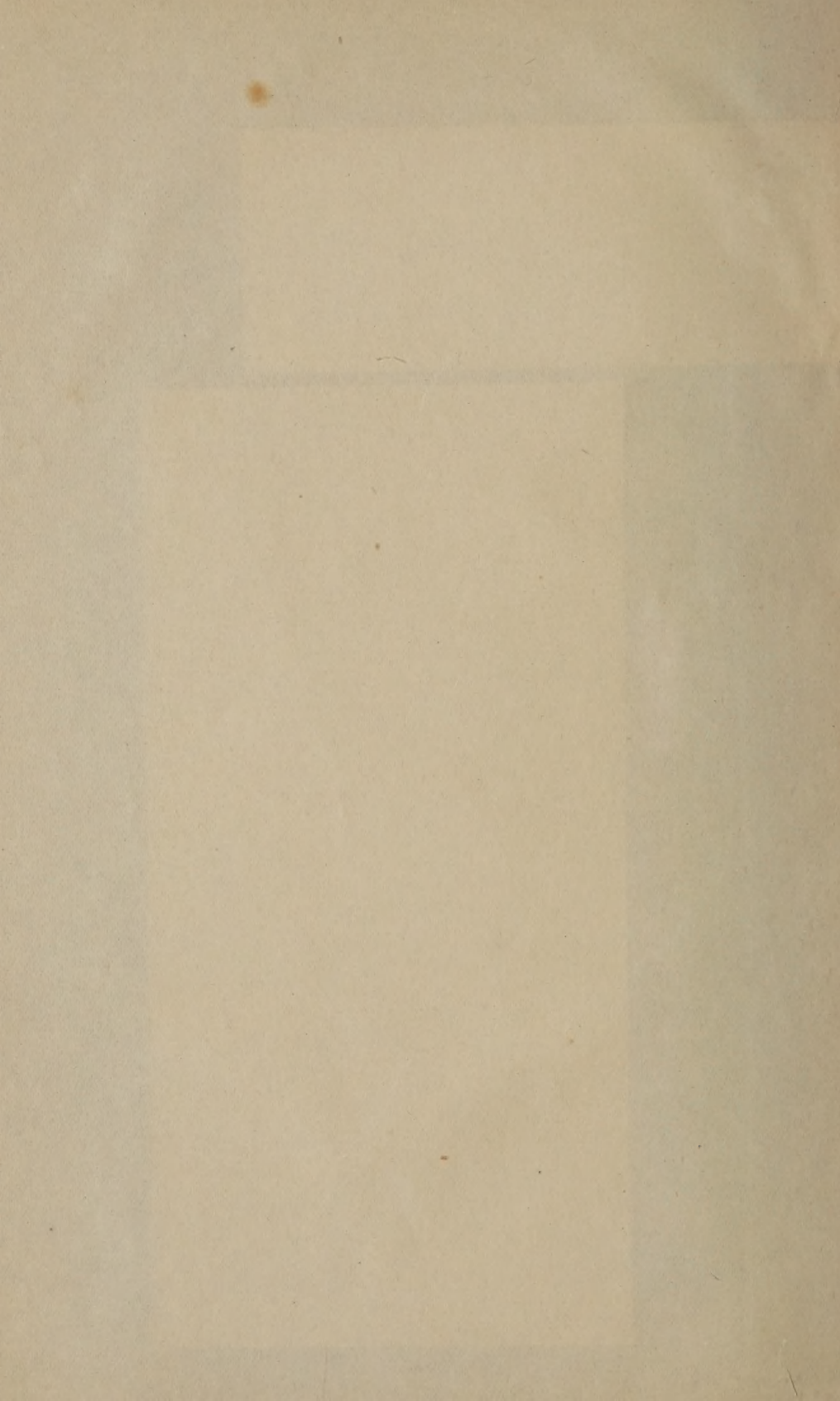
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ANNUAL REPORT

SECRETARY OF INTERNAL AFFAIRS

COMMONWEALTH OF PENNSYLVANIA

FOR 1874

PART II. INDUSTRIAL STATISTICS.

VOL. I.

W. J. WALLACE, CLERK.

PHILADELPHIA: J. B. LIPPINCOTT & CO. 1875.

1875

ANNUAL REPORT

OF THE

SECRETARY OF INTERNAL AFFAIRS

OF THE

COMMONWEALTH OF PENNSYLVANIA,

FOR 1874-5.

PART III.—INDUSTRIAL STATISTICS.
VOL. 3.

HARRISBURG:

B. F. MEYERS, STATE PRINTER.

1876

ANNUAL REPORT

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v. 3

REMOTE STORAGE

COMMISSIONER OF THE GENERAL LAND OFFICE

FOR 1871-2

DEPARTMENT OF THE INTERIOR
WASHINGTON

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14 MAY 12 N R.

COMMUNICATION.

DEPARTMENT OF INTERNAL AFFAIRS,
BUREAU OF INDUSTRIAL STATISTICS,
HARRISBURG, February 15, 1876. }

Hon. Wm. M'CANDLESS,

Secretary of Internal Affairs:

SIR:—I have the honor to present you, and through you, the people of Pennsylvania, the accompanying report of the Industrial Statistics of the State.

I am greatly indebted to the following named gentlemen for valuable assistance: John Fulton, E. M., Johnstown; M. N. Allen, Titusville; James Calder, D. D., Pennsylvania State College; S. S. Rathvon, Esq., Lancaster; W. W. Kingsbury, Towanda; J. J. Wadsworth, of Erie; F. G. Churchill, of Tioga; also, the editor of the *Miner's Journal*, Pottsville. To my excellent assistants, John L. Sexton, Jr., Esq., and Maj. R. H. Forster, I am under obligations for the great interest they manifested in the preparation of the report.

Very respectfully,

W. HAYES GRIER,
Chief of the Bureau.

INTRODUCTION.

The present organization of this Bureau was effected on the first Tuesday of May, 1875, under an act, approved May 11, 1874, entitled, "An Act, regulating the election of Secretary of Internal Affairs, defining his duty, &c."

The main duty of the Bureau is to "collect, compile and publish such statistics in regard to the wages of labor, and the social condition of the laboring classes, as may enable the people of the State to judge how far legislation can be invoked to correct existing evils;" and it is also "required to collect, compile and publish annually the productive statistics of agriculture, mining, manufacturing, commercial and other business interests of the State."

When we took possession of the Bureau, we found nothing to guide us—not even a blank. With this disadvantage we labored under the more serious one of a want of funds to aid us in our work. No money could be expended for canvassing the State, nor were we able to offer remuneration for any assistance; consequently we were compelled to do the best we could under the circumstances.

Our predecessor, in his first annual report, complained of the meagre appropriation. He was allowed six hundred dollars for expenses, and the following extract gives his view of the matter:

"When the amount and character of the work committed to the Bureau is comprehended, (if it ever is,) the extreme inadequacy of this appropriation will be startlingly manifest; and when, likewise, the value in usefulness of such a work, properly sustained and thoroughly executed, the arrangement and tabularization of all the stupendous indus-

“tries of the State, its vast developed and undeveloped mineral and other
“resources set forth in clear, orderly and authoritative tables, with the
“progress made, noted from year to year, giving the best and safest in-
“formation for, and the most persuasive invitation to, investors of capital
“at home and abroad, is comprehended, (if it ever is;) and when, again,
“the value of the work as a guide to legislation, securing our law-givers
“against errors and blunders in that direction, by furnishing them with
“the light of real facts and sure knowledge, that no chicanery, misrepre-
“sentation or conspiracy can befog or darken, is comprehended, (if it
“ever is;) the unwisdom of such inadequate appropriations, where the
“investment is so certain to give such large returns for the outlay, will
“be so manifest that its repetition will be impossible.”

The Legislature of 1874 viewed the matter in a more liberal light, and appropriated “nine hundred dollars, or so much thereof as may be necessary,” but provided that the allowance should cease whenever the Bureau should be merged in the office of Internal Affairs, and in making this provision it did not increase the incidental fund of said office, thus leaving the Bureau dependent upon the voluntary aid of such parties, throughout the State, as could be induced to take an interest in the work. Circulars were issued and addressed to different parties, but, with few exceptions, they remain unanswered.

In the report for 1873-74, the Commissioner, in referring to this subject, said: “We expressed the hope last year, that we would this year
“be in a position to make a much fuller and more valuable exhibit than
“then. But the same obstacles continued, through the Legislature fail-
“ing to confer the authority needed, which is embodied in the provisions
“for organizing the Department of Internal Affairs, and which it is now
“proposed shall be repealed before their effect can be practically tested.
“We can only hope that the Legislature, in its wisdom and justice, will
“not embarrass our successor with the disabilities that we labored under,
“but that the value of the Bureau may be subjected to at least an honest
“and practical test.”

While the Legislature did confer upon the Bureau all the authority necessary, it embarrassed us to a greater extent than our predecessor, by depriving us of any appropriation. It is unnecessary to pursue this subject further. Sufficient has been written to show the Legislature that the work of the Bureau was seriously incommoded by its failure to provide for it, and we can only express the hope that the matter may be remedied during the present session, so that the work for the next annual report may not be retarded.

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REPORT

OF THE

BUREAU OF INDUSTRIAL STATISTICS.

UNITED STATES GOVERNMENT.

President.—Ulysses S. Grant, Illinois.

President pro tempore of the Senate.—Thomas W. Ferry, Michigan.

Private Secretary to the President.—Gen. O. E. Babcock, Vermont.

CABINET.

Secretary of State.—Hamilton Fish, New York.

Secretary of the Treasury.—B. H. Bristow, Kentucky.

Secretary of War.—William W. Belknap, Iowa.

Secretary of the Navy.—George M. Robeson, New Jersey.

Secretary of the Interior.—Z. Chandler, Michigan.

Post Master General.—Marshall Jewell, Connecticut.

Attorney General.—Edwards Pierrepont, New York.

HEADS OF DEPARTMENT BUREAUS.

Assistant Secretary of State.—Charles Hale, Massachusetts.

Assistant Secretary of the Treasury.—Frederic A. Sawyer.

Superintendent of Coast Survey.—Benjamin Pierce, Massachusetts.

Director of Bureau of Statistics.—Edward Young, New York.

Congressional Printer.—Almon M. Clapp, New York.

Librarian of Congress.—Ainsworth R. Spofford, District of Columbia.

Assistant Attorney General.—Thomas Simons, New York.

Treasurer of the United States.—John C. New, Indiana.

Commissioner of Internal Revenue.—Daniel D. Pratt, Indiana.

Commissioner of Customs.—H. C. Johnson, Pennsylvania.

Commissioner of Patents.—Mortimer D. Leggett, Ohio.

Commissioner of Pensions.—J. H. Baker, Minnesota.

Commissioner of Indian Affairs.—Edward P. Smith, New York.

Commissioner of Land Office.—W. S. Drummond, Illinois.

Commissioner of Agriculture.—Frederick Watts, Pennsylvania.

Commissioner of Education.—John Eaton, Jr., Tennessee.

Register of the Treasury.—John Allison, Pennsylvania.

Comptroller of the Currency.—John J. Knox, New York.

Director of the United States Mint.—Henry R. Linderman, Pennsylvania.

SUPREME COURT OF THE UNITED STATES.

Chief Justice.—Morrison R. Waite, Ohio.

Associate Justices.

Nathan Clifford, Maine appointed in 1858.
 Noah H. Swayne, Ohio do.... 1862.
 Samuel F. Miller, Iowa do.... 1862.
 David Davis, Illinois do.... 1862.
 Stephen J. Field, California do.... 1863.
 William Strong, Pennsylvania do.... 1870.
 Joseph P. Bradley, New Jersey do.... 1870.
 Ward Hunt, New York do.... 1872.
Reporter.—John W. Wallace, Pennsylvania do.... 1868.

LIST OF SENATORS OF THE FIRST SESSION, FORTY-FOURTH CONGRESS.

NAME.	RESIDENCE.	SERVICE BEGAN.	SERVICE EXPIRES.
Alabama.			
George E. Spencer	Decatur	July 25, 1868,	March 3, 1879.
George Goldthwaite	Montgomery	Jan. 15, 1872,	March 3, 1877.
Arkansas.			
Powell Clayton	Little Rock	Mar. 25, 1871,	March 3, 1877.
Stephen W. Dorsey	Helena	Mar. 4, 1873,	March 3, 1879.
California.			
Aaron A. Sargent	Nevada	Mar. 4, 1873,	March 3, 1879.
Newton Booth	Sacramento	Mar. 4, 1875,	March 3, 1881.
Connecticut.			
William W. Eaton	Hartford	Feb. 13, 1875,	March 3, 1881.
James E. English*	New Haven	Nov. 27, 1875.	
Delaware.			
Thomas F. Bayard	Wilmington	Mar. 4, 1869,	March 3, 1881.
Eli Saulsbury	Dover	Mar. 4, 1871,	March 3, 1877.
Florida.			
Simon B. Conover	Tallahassee	Mar. 4, 1873,	March 3, 1879.
Charles A. Jones	Pensacola	Mar. 4, 1875,	March 3, 1881.
Georgia.			
Thomas M. Norwood	Savannah	Dec. 19, 1871,	March 3, 1877.
John B. Gordon	Atlanta	Mar. 4, 1873,	March 3, 1879.
Illinois.			
John A. Logan	Chicago	Mar. 4, 1871,	March 3, 1877.
Richard J. Oglesby	Decatur	Mar. 4, 1873,	March 3, 1879.

* Appointed by the Governor of State to fill vacancy.

LIST OF SENATORS—*Continued.*

NAME.	RESIDENCE.	SERVICE BE- GAN.	SERVICE EX- PIRES.
Indiana.			
Oliver P. Morton.....	Indianapolis.....	Mar. 4, 1867,	March 3, 1879.
Joseph E. McDonald.....	Indianapolis.....	Mar. 4, 1875,	March 3, 1881.
Iowa.			
George G. Wright.....	Des Moines.....	Mar. 4, 1871,	March 3, 1877.
William B. Allison.....	Dubuque.....	Mar. 4, 1873,	March 3, 1879.
Kansas.			
John J. Ingalls.....	Athens.....	Mar. 4, 1873,	March 3, 1879.
James M. Harvey.....	Vinton.....	Feb. 13, 1874,	March 3, 1877.
Kentucky.			
John W. Stevenson.....	Covington.....	Mar. 4, 1871,	March 3, 1877.
Thomas C. McCreery.....	Owensboro.....	Mar. 4, 1873,	March 3, 1879.
Louisiana.			
J. Rodman West.....	New Orleans.....	Mar. 4, 1871,	March 3, 1877.
Claimed by Pinchbeck and by Eastis.			
Maine.			
Hannibal Hamlin.....	Bangor.....	Mar. 4, 1869,	March 3, 1881.
Lot M. Morrill.....	Augusta.....	Dec. 6, 1869,	March 3, 1877.
Maryland.			
George R. Dennis.....	Kingston.....	Mar. 4, 1873,	March 3, 1879.
Wm. Pinckney Whyte.....	Baltimore.....	Mar. 4, 1875,	March 3, 1881.
Massachusetts.			
George S. Boutwell.....	Groton.....	Mar. 4, 1873,	March 3, 1877.
Henry L. Dawes.....	Pittsfield.....	Mar. 4, 1875,	March 3, 1881.
Michigan.			
Thomas W. Ferry.....	Grand Haven.....	Mar. 4, 1871,	March 3, 1877.
Isaac P. Christianity.....	Lansing.....	Mar. 4, 1875,	March 3, 1881.
Minnesota.			
William Windom.....	Winona.....	Mar. 4, 1871,	March 3, 1877.
Samuel J. R. McMillan.....	St. Paul.....	Mar. 4, 1875,	March 3, 1881.
Mississippi.			
James L. Alcorn.....	Friar's Point.....	Dec. 4, 1871,	March 3, 1877.
Branch K. Bruce.....	Floreyville.....	Mar. 4, 1875,	March 3, 1881.
Missouri.			
Lewis V. Bogy.....	St. Louis.....	Mar. 4, 1873,	March 3, 1879.
Francis M. Cockrell.....	Warrensburg.....	Mar. 4, 1875,	March 3, 1881.
Nebraska.			
Phineas W. Hitchcock.....	Omaha.....	Mar. 4, 1871,	March 3, 1877.
Algernon S. Paddock.....	Beatrice.....	Mar. 4, 1875,	March 3, 1881.
Nevada.			
John P. Jones.....	Gold Hill.....	Mar. 4, 1873,	March 3, 1879.
William Sharon.....	Virginia City.....	Mar. 4, 1875,	March 3, 1881.
New Hampshire.			
Aaron H. Cragin.....	Lebanon.....	Mar. 4, 1865,	March 3, 1877.
Bainbridge Wadleigh.....	Milford.....	Mar. 4, 1873,	March 3, 1879.
New Jersey.			
Fred'k T. Frelinghuysen.....	Newark.....	Mar. 4, 1871,	March 3, 1877.
Theodore F. Randolph.....	Morristown.....	Mar. 4, 1875,	March 3, 1881.
New York.			
Roscoe Conkling.....	Utica.....	Mar. 4, 1867,	March 3, 1879.
Francis Kernan.....	Utica.....	Mar. 4, 1875,	March 3, 1881.
North Carolina.			
Matt. W. Ransom.....	Weldon.....	April 24, 1872,	March 3, 1877.
Augustus S. Merrimon.....	Raleigh.....	Mar. 4, 1873,	March 3, 1879.

BUREAU OF STATISTICS.

LIST OF SENATORS—*Continued.*

NAME.	RESIDENCE.	SERVICE BE- GAN.	SERVICE EX- PIRES.
Ohio.			
John Sherman	Mansfield	Mar. 21, 1861,	March 3, 1879.
Allen G. Thurman	Columbus	Mar. 4, 1869,	March 3, 1881.
Oregon.			
James K. Kelly	Portland	Mar. 4, 1871,	March 3, 1877.
John H. Mitchell	Portland	Mar. 4, 1873,	March 3, 1879.
Pennsylvania.			
Simon Cameron	Harrisburg	Mar. 4, 1867,	March 3, 1879.
William A. Wallace	Clearfield	Mar. 4, 1875,	March 3, 1881.
Rhode Island.			
Henry B. Anthony	Providence	Mar. 4, 1859,	March 3, 1877.
Ambrose E. Burnside	Bristol	Mar. 4, 1875,	March 3, 1881.
South Carolina.			
Thomas J. Robertson	Columbia	July 22, 1868,	March 3, 1877.
John J. Patterson	Columbia	Mar. 4, 1873,	March 3, 1879.
Tennessee.			
Henry Cooper	Nashville	Mar. 4, 1871,	March 3, 1877.
David M. Key *	Chattanooga	Aug. 18, 1875.	
Texas.			
Morgan C. Hamilton	Austin	Mar. 31, 1870,	March 3, 1877.
Samuel B. Maxey	Paris	Mar. 4, 1875,	March 3, 1881.
Vermont.			
George F. Edmonds	Burlington	April 5, 1866,	March 3, 1881.
Justin S. Morrill	Strafford	Mar. 4, 1867,	March 3, 1879.
Virginia.			
John W. Johnston	Abingdon	Jan. 24, 1870,	March 3, 1877.
Robert E. Withers	Wytheville	Mar. 4, 1875,	March 3, 1881.
West Virginia.			
Henry G. Davis	Piedmont	Mar. 4, 1871,	March 3, 1877.
Allen T. Caperton	Union	Mar. 4, 1875,	March 3, 1881.
Wisconsin.			
Timothy O. Howe	Green Bay	Mar. 4, 1861,	March 3, 1879.
Angus Cameron	La Crosse	Mar. 4, 1875,	March 3, 1881.

LIST OF THE MEMBERS OF THE HOUSE OF REPRESENTATIVES
OF THE UNITED STATES,

*And their places of residence during the Forty-fourth Congress, first session,
commencing Monday, December 6, 1875.*

MAINE.

- | | |
|-------------------------------------|--------------------------------|
| 1. John H. Burleigh, South Berwick. | 4. Harris M. Plaisted, Bangor. |
| 2. William P. Frye, Lewiston. | 5. Eugene Hale, Ellsworth. |
| 3. James G. Blaine, Augusta. | |

NEW HAMPSHIRE.

- | | |
|--------------------------------|------------------------------|
| 1. Frank Jones, Portsmouth. | 3. Henry W. Blair, Plymouth. |
| 2. Samuel N. Bell, Manchester. | |

* Appointed by the Governor of State to fill vacancy.

VERMONT.

- | | |
|---------------------------------|-----------------------------------|
| 1. Charles H. Joyce, Rutland. | 3. George W. Hendee, Morrisville. |
| 2. Dudley C. Denison, Royalton. | |

MASSACHUSETTS.

- | | |
|---------------------------------------|-------------------------------------|
| 1. William W. Crapo, New Bedford. | 7. John K. Tarbox, Lawrence. |
| 2. Benj. W. Harris, East Bridgewater. | 8. William Wirt Warren, Boston. |
| 3. Henry L. Pierce, Boston. | 9. George F. Hoar, Worcester. |
| 4. Rufus S. Frost, Chelsea. | 10. Julius H. Seelye, Amherst. |
| 5. Nathaniel P. Banks, Waltham. | 11. Chester W. Chapin, Springfield. |
| 6. Charles P. Thompson, Gloucester. | |

RHODE ISLAND.

- | | |
|-----------------------------------|-----------------------------------|
| 1. Benjamin T. Eames, Providence. | 2. Latimer W. Ballou, Woonsocket. |
|-----------------------------------|-----------------------------------|

CONNECTICUT.

- | | |
|------------------------------------|------------------------------------|
| 1. George M. Landers, New Britain. | 3. Henry H. Starkweather, Norwich. |
| 2. James Phelps, Essex. | 4. William H. Barnum, Line Rock. |

NEW YORK.

- | | |
|---------------------------------------|---|
| 1. Henry B. Metcalfe, Richmond. | 18. Andrew Williams, Plattsburg. |
| 2. John G. Schumaker, Brooklyn. | 19. William A. Wheeler, Malone. |
| 3. Simeon B. Chittenden, Brooklyn. | 20. Henry H. Hathorn, Saratoga Springs. |
| 4. Archibald M. Bliss, Brooklyn. | 21. Samuel F. Miller, Franklin. |
| 5. Edwin R. Meade, New York. | 22. George A. Bagley, Watertown. |
| 6. Samuel S. Cox, New York. | 23. Scott Lord, Utica. |
| 7. Smith Ely, Jr., New York. | 24. William H. Baker, Constantia. |
| 8. Elijah Ward, New York. | 25. Elias W. Leavenworth, Syracuse. |
| 9. Fernando Wood, New York. | 26. Clinton D. MacDougall, Auburn. |
| 10. Abram S. Hewitt, New York. | 27. Elbridge G. Lapham, Canandaigua. |
| 11. Benjamin A. Willis, New York. | 28. Thomas C. Platt, Owego. |
| 12. N. Holmes Odell, White Plains. | 29. Charles C. B. Walker, Corning. |
| 13. John O. Whitehouse, Poughkeepsie. | 30. John M. Davy, Rochester. |
| 14. George M. Beebe, Monticello. | 31. George G. Hoskins, Attica. |
| 15. John H. Bagley, Jr., Catskill. | 32. Lyman K. Bass, Buffalo. |
| 16. Charles H. Adams, Cohoes. | 33. Nelson I. Norton, Hinsdale. |
| 17. Martin I. Townsend, Troy. | |

NEW JERSEY.

- | | |
|------------------------------------|--|
| 1. Clement H. Sinnickson, Salem. | 5. Augustus W. Cutler, Morristown. |
| 2. Samuel A. Dobbins, Mount Holly. | 6. Frederick H. Tees, Newark. |
| 3. Miles Ross, New Brunswick. | 7. Augustus A. Hardenbergh, Jersey City. |
| 4. Robert Hamilton, Newton. | |

PENNSYLVANIA.

- | | |
|---------------------------------------|--|
| 1. Chapman Freeman, Philadelphia. | 15. Joseph Powell, Towanda. |
| 2. Charles O'Neill, Philadelphia. | 16. Sobieski Ross, Coudersport. |
| 3. Samuel J. Randall, Philadelphia. | 17. John Reilly, Altoona. |
| 4. William D. Kelly, Philadelphia. | 18. William S. Stenger, Chambersburg. |
| 5. John Robbins, Philadelphia. | 19. Levi Maish, York. |
| 6. Washington Townsend, West Chester. | 20. Levi A. Mackey, Lock Haven. |
| 7. Alan Wood, Jr., Conshohocken. | 21. Jacob Turney, Greensburg. |
| 8. Hiester Clymer, Reading. | 22. James H. Hopkins, Pittsburg. |
| 9. A. Herr Smith, Lancaster. | 23. Alex. G. Cochrane, Allegheny City. |
| 10. William Mutchler, Easton. | 24. John W. Wallace, New Castle. |
| 11. Francis D. Collins, Scranton. | 25. George A. Jenks, Brookville. |
| 12. Winthrop W. Ketchum, Wilkesbarre. | 26. James Sheakley, West Greenville. |
| 13. James B. Reilly, Pottsville. | 27. Albert G. Egbert, Franklin. |
| 14. John B. Packer, Sunbury. | |

DELAWARE.

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|----------------------------|
| 1. James Williams, Kenton. |
|----------------------------|

MARYLAND.

- | | |
|-------------------------------------|-------------------------------|
| 1. Philip F. Thomas, Easton. | 4. Thomas Swann, Baltimore. |
| 2. Charles B. Roberts, Westminster. | 5. Eli J. Henkle, Brooklyn. |
| 3. William J. O'Brien, Baltimore. | 6. William Walsh, Cumberland. |

VIRGINIA.

- | | |
|---------------------------------------|-------------------------------------|
| 1. Beverly B. Douglass, Aylett's. | 6. John Randolph Tucker, Lexington. |
| 2. John Goode, Jr., Norfolk. | 7. John T. Harris, Harrisonburg. |
| 3. Gilbert C. Walker, Richmond. | 8. Eppa Hunton, Warrenton. |
| 4. William H. H. Stowell, Burkeville. | 9. William Terry, Wytheville. |
| 5. George C. Cabell, Danville. | |

NORTH CAROLINA.

- | | |
|--------------------------------------|-------------------------------------|
| 1. Jesse J. Yeates, Murfreesborough. | 5. Alfred M. Scales, Greensborough. |
| 2. John A. Hyman, Warrenton. | 6. Thomas S. Ashe, Wadesborough. |
| 3. Alfred M. Waddell, Wilmington. | 7. William M. Robbins, Statesville. |
| 4. Joseph J. Davis, Louisburg. | 8. Robert B. Vance, Asheville. |

SOUTH CAROLINA.

- | | |
|-------------------------------------|-------------------------------------|
| 1. Joseph H. Rainey, Georgetown. | 4. Alexander S. Wallace, Yorkville. |
| 2. Edmund W. M. Mackey, Charleston. | 5. Robert Smalls, Beaufort. |
| 3. Solomon L. Hoge, Columbia. | |

GEORGIA.

- | | |
|---------------------------------|--|
| 1. Julian Hartridge, Savannah. | 6. James H. Blount, Macon. |
| 2. William E. Smith, Albany. | 7. William H. Felton, Cartersville. |
| 3. Philip Cook, Americus. | 8. Alexan'r H. Stephens, Crawfordsville. |
| 4. Henry R. Harris, Greenville. | 9. Benjamin H. Hill, Atlanta. |
| 5. Milton A. Candler, Atlanta. | |

ALABAMA.

- | | |
|-----------------------------------|-------------------------------------|
| 1. Jere Haralson, Selma. | 5. John H. Caldwell, Jacksonville. |
| 2. Jeremiah N. Williams, Clayton. | 6. Goldsmith W. Hewitt, Birmingham. |
| 3. Taul Bradford, Talladega. | 7. Burwell B. Lewis, Tuscaloosa. |
| 4. Charles Hays, Haysville. | 8. William H. Forney, Jacksonville. |

MISSISSIPPI.

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|-----------------------------------|--------------------------------|
| 1. Lucius Q. C. Lamar, Oxford. | 4. Otho R. Singleton, Canton. |
| 2. G. Wiley Wells, Holly Springs. | 5. Charles E. Hooker, Jackson. |
| 3. Hernando D. Money, Winona. | 6. John R. Lynch, Natchez. |

LOUISIANA.

- | | |
|------------------------------------|-----------------------------------|
| 1. Randall L. Gibson, New Orleans. | 4. William M. Levy, Natchitoches. |
| 2. E. John Ellis, New Orleans. | 5. Frank Morev, Monroe. |
| 3. Chester B. Darrall, Brashear. | 6. Charles E. Nash, Washington. |

OHIO.

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|-------------------------------------|--|
| 1. Milton Saylor, Cincinnati. | 11. John L. Vance, Gallipolis. |
| 2. Henry B. Banning, Cincinnati. | 12. Ansel T. Walling, Circleville. |
| 3. John S. Savage, Wilmington. | 13. Milton I. Southard, Zanesville. |
| 4. John A. McMahon, Dayton. | 14. Jacob P. Cowan, Ashland. |
| 5. Americus V. Rice, Ottawa. | 15. Nelson H. Van Vorhes, Athens. |
| 6. Frank H. Hurd, Toledo. | 16. Lorenzo Danford, Saint Clairville. |
| 7. Lawrence T. Neal, Chillicothe. | 17. Laurin D. Woodworth, Youngstown. |
| 8. William Lawrence, Bellefontaine. | 18. James Monroe, Oberlin. |
| 9. Marley F. Poppleton, Delaware. | 19. James A. Garfield, Hiram. |
| 10. Charles Foster, Fostoria. | 20. Henry B. Payne, Cleveland. |

KENTUCKY.

- | | |
|-----------------------------------|--|
| 1. Andrew R. Boone, Mayfield. | 6. Thomas L. Jones, Newport. |
| 2. John Young Brown, Henderson. | 7. Joseph C. S. Blackburn, Versailles. |
| 3. Charles W. Milliken, Franklin. | 8. Milton J. Durham, Danville. |
| 4. J. Proctor Kott, Lebanon. | 9. John D. White, Manchester. |
| 5. Edward Y. Parsons, Louisville. | 10. John B. Clarke, Augusta. |

TENNESSEE.

- | | |
|------------------------------------|--------------------------------------|
| 1. William M'Farland, Morristown. | 6. John F. House, Clarksville. |
| 2. Jacob M. Thornburgh, Knoxville. | 7. Washington C. Withorne, Columbia. |
| 3. George G. Dibrell, Sparta. | 8. John D. C. Atkins, Paris. |
| 4. ———— | 9. William P. Caldwell, Gardner. |
| 5. John M. Bright, Fayetteville. | 10. H. Casey Young, Memphis. |

INDIANA.

- | | |
|------------------------------------|-------------------------------------|
| 1. Benoni S. Fuller, Boonville. | 8. Morton C. Hunter, Bloomington. |
| 2. James D. Williams, Wheatland. | 9. Thomas J. Cason, Lebanon. |
| 3. Michael C. Kerr, New Albany. | 10. William S. Haymond, Monticello. |
| 4. Jephtha D. New, Vernon. | 11. James L. Evans, Nobleville. |
| 5. William S. Holman, Aurora. | 12. Andrew H. Hamilton, Fort Wayne. |
| 6. Milton S. Robinson, Anderson. | 13. John H. Baker, Goshen. |
| 7. Franklin Landers, Indianapolis. | |

ILLINOIS.

- | | |
|------------------------------------|--|
| 1. Bernard G. Caulfield, Chicago. | 11. Scott Wike, Pittsfield. |
| 2. Carter H. Harrison, Chicago. | 12. William M. Springer, Springfield. |
| 3. Charles B. Farwell, Chicago. | 13. Adlai E. Stevenson, Bloomington. |
| 4. Stephen A. Hurlbut, Belyidere. | 14. Joseph G. Cannon, Tuscola. |
| 5. Horatio C. Burchard, Freeport. | 15. John R. Eden, Sullivan. |
| 6. Thomas J. Henderson, Princeton. | 16. William A. J. Sparks, Carlyle. |
| 7. Alexander Campbell, La Salle. | 17. William R. Morrison, Waterloo. |
| 8. Greenbury L. Fort, Lacon. | 18. William Hartzell, Chester. |
| 9. Richard H. Whiting, Peoria. | 19. William B. Anderson, Mount Vernon. |
| 10. John C. Bagby, Rushville. | |

MISSOURI.

- | | |
|-----------------------------------|---------------------------------------|
| 1. Edward C. Kehr, Saint Louis. | 8. Benjamin J. Franklin, Kansas City. |
| 2. Erastus Wells, Saint Louis. | 9. David Rea, Savannah. |
| 3. William H. Stone, Saint Louis. | 10. Rezin A. De Bolt, Trenton. |
| 4. Robert A. Hatcher, New Madrid. | 11. John B. Clark, Jr., Fayette. |
| 5. Richard P. Bland, Lebanon. | 12. John M. Glover, La Grange. |
| 6. Charles H. Morgan, Lamar. | 14. Aylett H. Buckner, Saint Charles. |
| 7. John F. Phillips, Sedalia. | |

ARKANSAS.

- | | |
|-------------------------------------|--------------------------------------|
| 1. Lucien C. Gause, Jacksonport. | 3. William W. Wilshire, Little Rock. |
| 2. William F. Slemmons, Monticello. | 4. Thomas M. Gunter, Fayetteville. |

MICHIGAN.

- | | |
|-----------------------------------|---------------------------------|
| 1. Alpheus S. Williams, Detroit. | 6. George H. Durand, Flint. |
| 2. Henry Waldron, Hillsdale. | 7. Omar D. Conger, Port Huron. |
| 3. George Williard, Battle Creek. | 8. Nathan B. Bradley, Bay City. |
| 4. Allen Potter, Kalamazoo. | 9. Jay A. Hubbell, Houghton. |
| 5. William B. Williams, Allegan. | |

FLORIDA.

- | | |
|----------------------------------|------------------------------------|
| 1. Josiah T. Walls, Gainesville. | 2. William J. Purman, Tallahassee. |
|----------------------------------|------------------------------------|

TEXAS.

- | | |
|-------------------------------------|--------------------------------|
| 1. John H. Reagan, Palestine. | 4. Roger Q. Mills, Corsicana. |
| 2. David B. Culbertson, Jefferson. | 5. John Hancock, Austin. |
| 3. James W. Throckmorton, M'Kinney. | 6. Gustave Schleicher, Cicero. |

IOWA.

- | | |
|-------------------------------------|-----------------------------------|
| 1. George W. M'Crary, Keokuk. | 6. Ezekiel S. Sampson, Sigourney. |
| 2. John Q. Tufts, Wilton Junction. | 7. John A. Kasson, Des Moines. |
| 3. Lucien L. Ainsworth, West Union. | 8. James W. M'Dill, Afton. |
| 4. Henry O. Pratt, Charles City. | 9. Addison Oliver, Onawa. |
| 5. James Wilson, Buckingham. | |

WISCONSIN.

- | | |
|--------------------------------------|------------------------------------|
| 1. Charles G. Williams, Janesville. | 5. Samuel D. Burchard, Beaver Dam. |
| 2. Lucien B. Caswell, Fort Atkinson. | 6. Alanson M. Kimball, Pine River. |
| 3. Henry S. Magoon, Darlington. | 7. Jeremiah M. Rusk, Viroqua. |
| 4. William Pitt Lynde, Milwaukee. | 8. George W. Cate, Amherst. |

CALIFORNIA.

- | | |
|-------------------------------------|----------------------------------|
| 1. William A. Piper, San Francisco. | 3. John K. Luttrell, Santa Rosa. |
| 2. Horace F. Page, Placerville. | 4. P. D. Wiggington, Merced. |

MINNESOTA.

- | | |
|--------------------------------|----------------------------------|
| 1. Mark H. Dunnell, Owatonna. | 3. William S. King, Minneapolis. |
| 2. Horace B. Strait, Shakopee. | |

BUREAU OF STATISTICS.

OREGON.

1. Lafayette Lane.

KANSAS.

- | | |
|---------------------------------|----------------------------------|
| 1. William A. Phillips, Salina. | 3. William R. Brown, Hutchinson. |
| 2. John R. Goodin, Humboldt. | |

WEST VIRGINIA.

- | | |
|--------------------------------------|---------------------------|
| 1. Benjamin Wilson, Wilsonburg. | 3. Frank Hereford, Union. |
| 2. Charles J. Faulkner, Martinsburg. | |

NEVADA.

1. William Woodburn, Virginia City.

NEBRASKA.

1. Lorenzo Crounse, Fort Calhoun.

DELEGATES FROM THE TERRITORIES.

NEW MEXICO.

1. Stephen B. Elkins, Santa Fe.

UTAH.

1. George Q. Cannon, Salt Lake City.

WASHINGTON.

1. Orange Jacobs, Seattle.

COLORADA.

1. Thomas M. Patterson, Denver.

DAKOTA.

1. Jefferson P. Kidder, Vermillion.

ARIZONA.

1. Hiram S. Stevens, Tucson.

IDAHO.

1. Thomas W. Bennett, Boise City.

MONTANA.

1. Martin Maginnis, Helena.

WYOMING.

1. William R. Steele, Cheyenne.

APPORTIONMENT OF REPRESENTATIVES IN CONGRESS, ACCORD- ING TO THE NEW CENSUS OF 1870.

Maine	5	Texas	6
New Hampshire.....	3	Arkansas.....	4
Vermont	3	Tennessee	10
Massachusetts	11	Kentucky	10
Rhode Island	2	Indiana	13
Connecticut	4	Ohio.....	20
New York.....	33	Illinois.....	19
New Jersey	7	Michigan	9
Pennsylvania	27	Missouri	14
Delaware.....	1	Iowa.....	9
Maryland	6	Wisconsin.....	8
Virginia	9	Minnesota.....	3
West Virginia	3	Nebraska	1
North Carolina.....	8	Kansas	3
South Carolina.....	5	Nevada	1
Georgia	9	California	4
Florida	2	Oregon	1
Alabama	8		
Mississippi	6	Total Representatives.....	294
Louisiana	6		
Delegates from Territories.....			9

AREA AND POPULATION OF THE UNITED STATES BY DECADES, DURING THE NINETEENTH CENTURY.

YEAR.	Area of square miles.	Total popula- tion.	Slaves.
1800	827,844	5,308,483	893,041
1810	1,990,131	7,239,881	1,191,364
1820	2,059,043	9,638,453	1,538,064
1830	2,059,043	12,866,020	2,009,031
1840	2,059,043	17,069,453	2,487,355
1850	2,980,959	23,191,876	3,204,818
1860	3,026,494	31,443,321	3,953,760
1870	3,603,884	38,558,371	col'd pop. 4,879,107
1880.....Estimated increase.....		51,819,227	
1890.....do.....		69,640,708	
1900.....do.....		93,591,188	

STATE GOVERNMENTS AND TERRITORIES.

States.	Capitals.	Governors.	Term Years	Expires.	Salary.
Maine	Augusta	Selden Conner	1	Jan., 1877..	\$2,500
N. Hampshire,	Concord	Person C. Cheney	1	June, 1876..	1,000
Vermont.....	Montpelier.....	Asahel Peck	1	Oct., 1876..	1,000
Massachusetts..	Boston	Alex. H. Price.....	1	Oct., 1876..	5,000
Rhode Island..	{ Newport and } { Providence, }	Henry Lippett	1	May, 1876..	1,000
Connecticut ..	Hartford.....	Chas. R. Ingersoll....	1	May, 1876..	2,000
New York.....	Albany.....	Samuel J. Tilden....	2	Jan., 1877..	4,000
New Jersey....	Trenton.....	Joseph A. Bedle.....	3	Jan., 1878..	3,000
Pennsylvania..	Harrisburg....	John F. Hartranft....	3	Jan., 1879..	10,000
Delaware.....	Dover	John P. Cochran.....	4	Jan., 1879..	1,333
Maryland.....	Annapolis....	John B. Carroll.....	4	Jan., 1879..	4,500
Virginia.....	Richmond....	James L. Kemper....	4	Jan., 1878..	5,000
West Virginia..	Wheeling	John J. Jacob	2	Mar., 1877..	2,500
North Carolina,	Raleigh	Curtis H. Brogden....	2	Jan., 1877..	5,000
South Carolina,	Columbia	D. H. Chamberlin....	2	Jan., 1877..	4,000
Georgia.....	Atlanta.....	James M. Smith.....	2	Jan., 1877..	5,000
Florida.....	Tallahassee ..	M. L. Stearns.....	4	Jan., 1879..	3,500
Alabama.....	Montgomery ..	George S. Houston ..	2	Nov., 1876..	4,000
Mississippi....	Jackson.....	Adelbert Ames.....	2	Jan., 1877..	3,000
Louisiana.....	New Orleans ..	Wm. P. Kellogg.....	4	Jan., 1877..	8,000
Texas.....	Austin	Richard Coke.....	2	Jan., 1877..	5,000
Arkansas.....	Little Rock....	Aug. H. Garland.....	4	Jan., 1879..	3,500
Tennessee.....	Nashville	James D. Porter, Jr..	2	Jan., 1877..	3,000
Kentucky.....	Frankfort.....	Thomas C. McCreery..	4	Jan., 1879..	5,000
Ohio.....	Columbus.....	R. B. Hayes.....	2	Jan., 1878..	4,000
Indiana.....	Indianapolis ..	Thos. A. Hendricks ..	4	Jan., 1877..	3,000
Illinois.....	Springfield....	John L. Beveridge ..	4	Jan., 1879..	2,500
Michigan.....	Lansing.....	John J. Bagley	2	Jan., 1877..	1,500
Wisconsin.....	Madison	Harman Ludington ..	2	Jan., 1878..	5,000
Missouri.....	Jefferson City ..	Charles H. Hardin ..	4	Jan., 1879..	5,000
Iowa.....	Des Moines.....	S. J. Kirkwood.....	2	Jan., 1878..	2,500
Minnesota.....	St. Paul.....	J. S. Pillsbury.....	2	Jan., 1878..	3,000
Kansas.....	Topeka.....	Thos. A. Osborne.....	2	Jan., 1877..	3,000
Nebraska.....	Lincoln.....	Silas Garber.....	2	Jan., 1877..	1,000
Nevada.....	Carson City....	L. R. Bradley.....	2	Jan., 1877..	6,000
California.....	Sacramento.....	William Irwin.....	4	Dec., 1879..	7,000
Oregon.....	Salem.....	Lafayette Grover....	4	Sept., 1878..	1,500

TERRITORIES.

Territories.	Capitals.	Governors.	Term Exp.	Salary.
Arizona.....	Tucson	A. P. K. Safford.....	1877	\$1,500
Colorado.....	Denver	Edward M. McCook	1878	1,500
Dakota.....	Yankton.....	John L. Pennington	1878	1,500
Idaho.....	Boise City.....	Thomas H. Bennett	1875	2,500
Montana.....	Helena.....	Benjamin F. Potts.....	1878	2,500
New Mexico....	Santa Fe.....	Marsh Giddings.....	1875	1,500
Utah.....	Great Salt Lake City	George L. Woods.....	1875	1,500
Washington....	Olympia.....	Elisha P. Ferry.....	1876	1,500
Wyoming.....	Cheyenne.....	John A. Campbell	1877	2,000
Indian Territory..	Tah-le-quah	{ Under the government }		
		{ of native Indians..... }		
Alaska.....	Sitka.....	Unorganized.....		

TABLE Exhibiting the Seats of Government, the time of the election of State officers, and the meeting of the Legislatures of the several States.

STATES.	Seat of Government.	Time of holding Election.	Meeting of the Legislatures.
Alabama.....	Montgomery.....	Tuesday after first Monday in November.....	Third Monday in November.
Arkansas.....	Little Rock.....	First Monday in November.....	First Monday in January.
California.....	Sacramento.....	Tuesday after first Monday in September.....	First Monday in December, <i>biennially</i> .
Connecticut.....	Hartford.....	First Monday in April.....	First Wednesday in May.
Delaware.....	Dover.....	First Tuesday in August.....	First Tuesday in January, <i>biennially</i> .
Florida.....	Tallahassee.....	Tuesday after first Monday in November.....	Tuesday after first Monday in January.
Georgia.....	Atlanta.....	First Tuesday in August.....	Second Wednesday in January, <i>biennially</i> .
Illinois.....	Springfield.....	Tuesday after first Monday in November.....	First Monday in January, <i>biennially</i> .
Indiana.....	Indianapolis.....	Second Tuesday in October.....	First Wednesday in January, <i>biennially</i> .
Iowa.....	Des Moines.....	Second Tuesday in October.....	Second Monday in January, <i>biennially</i> .
Kansas.....	Topeka.....	First Tuesday in November.....	Second Tuesday in January.
Kentucky.....	Frankfort.....	First Monday in August.....	First Monday in December, <i>biennially</i> .
Louisiana.....	New Orleans.....	First Monday in November.....	First Monday in January.
Maine.....	Augusta.....	Second Monday in September.....	First Wednesday in January.
Maryland.....	Annapolis.....	First Tuesday in November.....	First Wednesday in January, <i>biennially</i> .
Massachusetts.....	Boston.....	Tuesday after first Monday in November.....	First Wednesday in January.
Michigan.....	Lansing.....	Tuesday after first Monday in November.....	First Wednesday in January, <i>biennially</i> .
Minnesota.....	St. Paul.....	First Tuesday in November.....	Tuesday after first Monday in January.
Mississippi.....	Jackson.....	Tuesday after first Monday in November.....	Tuesday after first Monday in January.
Missouri.....	Jefferson City.....	First Tuesday in November.....	Tuesday after first Monday in January.
Nebraska.....	Lincoln.....	Second Tuesday in October.....	Last Monday in December, <i>biennially</i> .
Nevada.....	Carson City.....	Tuesday after first Monday in November.....	Thursday after first Monday in Jan., <i>biennially</i> .
New Hampshire.....	Concord.....	Second Tuesday in March.....	First Monday in January, <i>biennially</i> .
New Jersey.....	Trenton.....	Tuesday after first Monday in November.....	First Monday in June.
New York.....	Albany.....	Tuesday after first Monday in November.....	Second Tuesday in January.
North Carolina.....	Raleigh.....	First Thursday in August.....	First Tuesday in January.
Ohio.....	Columbus.....	Second Tuesday in October.....	First Thursday in November.
Oregon.....	Salem.....	First Monday in June.....	First Monday in January, <i>biennially</i> .
Pennsylvania.....	Harrisburg.....	Tuesday after first Monday in November.....	Second Monday in September, <i>biennially</i> .
Rhode Island.....	Newport, Providence.....	First Wednesday in April.....	First Tuesday in January.
South Carolina.....	Columbia.....	First Monday in November.....	May and January.
Tennessee.....	Nashville.....	First Monday in August.....	Third Wednesday in October.
Texas.....	Austin.....	First Tuesday in December.....	First Monday in October, <i>biennially</i> .
Vermont.....	Montpelier.....	First Tuesday in September.....	First Monday in November.
Virginia.....	Richmond.....	Tuesday after first Monday in November.....	Second Thursday in October, <i>biennially</i> .
West Virginia.....	Wheeling.....	Fourth Thursday in October.....	First Monday in December.
Wisconsin.....	Madison.....	Tuesday after first Monday in November.....	Second Tuesday in January.

HISTORICAL AND STATISTICAL TABLE OF THE UNITED STATES.

STATES.	When settled...	Where settled.	By whom settled.	When adopted the Constitution.	When admitted into the Union.	Square miles...	Population in 1870.....
Virginia.....	1607	Jamestown.....	English.....	June 26, 1788.....	.....	41,352	1,225,163
New York.....	1614	Albany.....	Dutch.....	July 26, 1788.....	.....	47,156	4,382,759
Massachusetts.....	1620	Plymouth.....	English.....	Feb. 6, 1788.....	.....	7,900	1,437,351
New Hampshire.....	1624	Dover.....	English.....	June 21, 1788.....	.....	9,280	318,300
New Jersey.....	1624	Bergen.....	Dutch and Danes.....	Dec. 18, 1787.....	.....	8,320	906,096
Delaware.....	1627	Cape Henlopen.....	Swedes and Finns.....	Dec. 7, 1787.....	.....	2,120	125,015
Connecticut.....	1633	Windsor.....	Emigrants from Massachusetts.....	Jan. 9, 1788.....	.....	4,674	537,454
Maryland.....	1634	St. Mary's.....	English.....	April 28, 1788.....	.....	9,336	780,894
Rhode Island.....	1636	Providence.....	Roger Williams.....	May 29, 1790.....	.....	1,306	217,353
North Carolina.....	1663	Albermarle.....	English.....	Nov. 21, 1780.....	.....	45,000	1,071,361
South Carolina.....	1670	Port Royal.....	English.....	May 23, 1788.....	.....	24,500	705,606
Pennsylvania.....	1682	Philadelphia.....	English.....	Dec. 12, 1787.....	.....	46,000	8,521,791
Georgia.....	1733	Savannah.....	English.....	Jan. 9, 1788.....	.....	53,000	1,184,109
Florida.....	1565	St. Augustine.....	Spanish.....	.....	Mar. 3, 1845.....	59,268	187,748
Maine.....	1623	Bristol.....	English.....	.....	Mar. 16, 1820.....	35,000	626,915
Wisconsin.....	1669	Green Bay.....	French.....	.....	May 29, 1848.....	53,924	1,034,670
Michigan.....	1670	Detroit.....	French.....	.....	Jan. 26, 1837.....	56,243	1,184,659
Arkansas.....	1685	Arkansas Post.....	French.....	.....	June 15, 1836.....	52,198	484,471
Texas.....	1690	St. Antonio de Bexar.....	Spanish.....	.....	Dec. 24, 1845.....	237,321	818,579
Indiana.....	1690	Vincennes.....	French.....	.....	Dec. 11, 1816.....	33,809	1,680,637
Louisiana.....	1699	Beverly.....	French.....	.....	April 8, 1812.....	46,431	726,915
Alabama.....	1711	Mobile.....	French.....	.....	Dec. 14, 1819.....	50,722	996,992
Mississippi.....	1716	Natchez.....	French.....	.....	Dec. 10, 1817.....	47,156	827,922
Illinois.....	1720	Kaskaskia.....	French.....	.....	Dec. 3, 1818.....	55,405	2,539,891
Vermont.....	1725	Fort Drummer.....	Emigrants from Massachusetts.....	.....	Mar. 4, 1791.....	9,056	330,551
Tennessee.....	1757	Fort Loudon.....	Emigrants from North Carolina.....	.....	June 1, 1796.....	46,600	1,258,520
Missouri.....	1764	St. Louis.....	French.....	.....	Aug. 10, 1821.....	67,380	1,721,295
California.....	1769	San Diego.....	Spanish.....	.....	Sept. 7, 1850.....	158,933	560,247
Kentucky.....	1775	Boonesborough.....	Daniel Boone and associates.....	.....	June 1, 1792.....	37,680	1,321,011
Ohio.....	1788	Marietta.....	Emigrants from New England.....	.....	Nov. 29, 1802.....	39,964	2,665,260
Oregon.....	1811	Astoria.....	Emigrants from Eastern States.....	.....	.....	95,248	90,923

HISTORICAL AND STATISTICAL TABLE OF THE UNITED STATES—Continued.

STATES.	When settled...	Where settled.	By whom settled.	When adopted the Constitution.	When admitted into the Union.	Area miles...	Population in 1870.....
Iowa.....	1833	Burlington	Emigrants from Eastern States.	.....	Mar. 3, 1845.	55,045	1,191,792
Minnesota	1846	Saint Paul	Emigrants from Eastern States.	.....	May, 1858.	83,531	439,706
Kansas.....	1850	Topeka	Emigrants from Eastern States.	.....	1861.	81,318	364,399
West Virginia .....	.....	.....	.....	.....	1862.	20,000	442,014
Nevada.....	.....	.....	Emigrants from Eastern States.	.....	1864.	112,090	42,491
Nebraska.....	.....	.....	Emigrants from Eastern States.	.....	1867.	73,995	122,993

AMERICAN WARS DURING THE PAST ONE HUNDRED YEARS.

		Length.	Cost.
1.	War of the Revolution.....	7 years, 1775-82.	\$135, 193, 703
2.	Indian war in Ohio territory.....	1790.	
3.	War with Barbary.....	1803-04.	
4.	Tecumseh Indian war.....	1811.	
5.	War with Great Britain.....	3 years, 1812-15.	107, 159, 003
6.	Algerine war.....	1815.	
7.	First Seminole war.....	1817.	
8.	Black Hawk war.....	1832.	
9.	Second Seminole war.....	1845.	
10.	Mexican war.....	2 years, 1846-48.	66, 000, 000
11.	Mormon war.....	1856.	
12.	War of Rebellion.....	4 years, 1861-65.	3, 000, 000, 000

COMMONWEALTH OF PENNSYLVANIA.

GOVERNOR AND HEADS OF DEPARTMENTS, WITH THEIR PLACES
OF RESIDENCE IN HARRISBURG.

GOVERNOR.

John F. Hartranft, Montgomery county, Executive Mansion, Front street
above Pine.

LIEUTENANT GOVERNOR.

John Latta, Westmoreland county, Bolton's Hotel.

Private Secretary to Governor.

A. Wilson Norris, Philadelphia, Lochiel Hotel.

SECRETARY OF THE COMMONWEALTH.

Matthew S. Quay, Beaver county, Lochiel Hotel, Third and Market streets.

DEPUTY SECRETARY OF THE COMMONWEALTH.

John B. Linn, Centre county, Miss Allen's, 404 N. Third street.

Chief Clerk.

Thomas M'Camant, Blair county, corner of Third and Forster streets.

ATTORNEY GENERAL.

George Lear, Bucks county, Lochiel Hotel.

DEPUTY ATTORNEY GENERAL.

Lyman D. Gilbert, Dauphin county, 203 N. Front street.

AUDITOR GENERAL.

Justus F. Temple, Greene county, United States Hotel.

Chief Clerk.

G. W. G. Waddell, Greene county, 303 Boas street.

STATE TREASURER.

R. W. Mackey, Philadelphia, Lochiel Hotel, Third and Market streets.

Cashier.

W. B. Hart, Montgomery county, 1009 N. Third street.

SECRETARY OF INTERNAL AFFAIRS.

William M'Candless, Philadelphia, Bolton's Hotel.

Chief Clerk.

J. Simpson Africa, Huntingdon county, Bolton's Hotel.

SUPT. OF PUBLIC INSTRUCTION AND SUPT. OF SOLDIERS' ORPHAN SCHOOLS.

J. P. Wickersham, Lancaster co., State Capital Hotel, Third and Walnut sts.

DEPUTY SUPERINTENDENT OF COMMON SCHOOLS.

Henry Houck, Lebanon county.

Chief Clerk.

Jas. L. Paul, Westmoreland county, 609 N. Front street.

ADJUTANT GENERAL.

James W. Latta, Philadelphia, Lochiel Hotel, Third and Market streets.

Chief Clerk.

George C. Kelly, Union county, Second street near Herr.

BUREAU OF STATISTICS.

W. Hayes Grier, Chief of Bureau, Lancaster county, United States Hotel.

DEPARTMENT OF INSURANCE.

J. Montgomery Forster, Commissioner, Dauphin co., South Front street.

L. R. Boggs, Deputy Commissioner, 25 North Front street.

STATE LIBRARIAN.

O. H. Miller, Allegheny county, 1113 N. Third street.

J. R. Orwig, Assistant Librarian, 313 N. Second street.

SUPERINTENDENT OF PUBLIC PRINTING.

J. W. Jones, Dauphin county, South Third street.

SUPERINTENDENT OF PUBLIC BUILDINGS AND GROUNDS.

William H. Patterson, 708 North Third street.

STATE PRINTER.

B. F. Meyers, Bedford county, Third and Locust streets.

LEGISLATIVE JOURNAL.

Charles H. Bergner, Third and Market streets.

EXECUTIVE DEPARTMENT.

Governor—John F. Hartranft, Montgomery county, Executive Mansion,
Front street above Pine.

Private Secretary—A. Wilson Norris, Philadelphia, Lochiel Hotel.

Executive Clerk—Warren B. Keely, Berks county, Lochiel Hotel.

Messenger—J. C. Delaney, Luzerne county, Bolton's Hotel.

Engineer—Joseph K. Bolton, Montgomery county, White Hall Hotel.

OFFICE OF SECRETARY OF COMMONWEALTH.

Secretary—M. S. Quay, Beaver county, Lochiel Hotel.

Deputy Secretary—John B. Linn, Centre county, 404 North Third street.

Chief Clerk—Thomas M'Camant, Blair county, 307 Briggs street.

Clerks—B. F. Chandler, Dauphin county, Bolton's Hotel.

Lane S. Hart, Montgomery county, 236 Boas street.

Sam. Matt Fridy, Lancaster county, Lochiel Hotel.

Robert T. Beatty, Perry county, 512 North Third street.

Clerks—M. N. Cutler, Erie county, Crescent street near Kittatinny.
 H. H. Hartranft, Lycoming county, Lochiel Hotel.
 George H. Holmes, Dauphin county, Pine street.
 Job M. Jordan, Bedford county, 216 North street.

Messenger—B. P. Thompson, Montgomery co., Boas street near Ridge Road.

ATTORNEY GENERAL'S DEPARTMENT.

Attorney General—George Lear, Bucks county, Lochiel Hotel.
Deputy Attorney General—Lyman D. Gilbert, Dauphin co., 219 Market st.
Clerk—George F. Ross, Mifflin county, 303 Briggs street.

AUDITOR GENERAL'S OFFICE.

Auditor General—Justus F. Temple, Greene county, United States Hotel.
Chief Clerk—G. W. G. Waddell, Greene county, 303 Boas street.
Corporation Clerk—Wm. J. Bayard, Greene county, United States Hotel.
Bank Clerk—C. F. Warden, Westmoreland county, Bolton's Hotel.
Warrant Clerk—John M'Murray, Jefferson county, 610 Boas street.
County Clerk—Wm. J. Jackman, Juniata county, United States Hotel.
Registry Clerk—Jos. G. Garard, Fayette county, 217 Pine street.
Canal Clerk—C. I. Markell, Washington county, United States Hotel.
Clerks—Wm. H. Reel, Allegheny county, 225 Herr street.
 A. J. Sanderson, Lancaster county, cor. Locust and Second sts.
 Walter Dieffenbach, Columbia county, 311 North Second street.
 Wm. L. Sansom, Indiana county, 217 Pine street.
Messenger—B. M. Nead, Franklin county, United States Hotel.
Night Watchman—Alex. Beltzhoover, Allegheny county, Walnut street.

DEPARTMENT OF INTERNAL AFFAIRS.

Secretary of Internal Affairs—William M'Candless, Philadelphia, Bolton's Hotel.
Chief Clerk—J. Simpson Africa, Huntingdon county, Bolton's Hotel.
Chief of Bureau of Industrial Statistics—W. Hayes Grier, Lancaster county, United States Hotel.
Clerks—Hamilton Alricks, Jr., Dauphin county, Bolton's Hotel.
 James Atwell, Philadelphia, G. W. P. Davis', Front and North sts.
 A. D. Boileau, Philadelphia, G. W. P. Davis', Front and North sts.
 John W. Brown, Dauphin county, 210 North Second street.
 John Christy, Blair county, Keystone Hotel.
 R. H. Forster, Bureau of Statistics, Centre county, 210 South Second street.
 S. L. Fairlamb, Delaware county, Two-and-a-Half near Herr street.
 S. George, Lycoming county, 216 North street.

Clerks—D. W. Henderson, Bureau of Statistics, Philadelphia, Kirkwood House.

Richard M'Sherry, Adams county, Mrs. Johnson's, Fourth and Market streets.

T. O'Leary, Jr., Allegheny county, 907 North Third street.

A. J. Randall, Schuylkill county, Kirkwood House.

John L. Sexton, Jr., Bureau of Statistics, Tioga county, 228 Herr street.

N. C. Wilson, Mifflin county, Lochiel Hotel.

Messengers—Michael Bradley, Philadelphia, G. W. P. Davis', corner Front and North streets.

G. W. P. Davis, Bureau of Statistics, Dauphin county, Front and North streets.

TREASURY DEPARTMENT.

State Treasurer—R. W. Mackey, Allegheny county, Lochiel Hotel, Third and Market streets.

Cashier—W. B. Hart, Montgomery county, 1009 North Third street.

Clerks—M. S. Smith, Indiana county, Keystone Hotel.

G. E. Hoffman, Northumberland county, West State street.

Jos. Eagen, Allegheny county, Lochiel Hotel.

Messenger—William Searfauss, Dauphin county, Regina street.

Night Watchman—John Lynch, Dauphin county.

DEPARTMENT OF PUBLIC INSTRUCTION.

Superintendent of Common Schools—James P. Wickersham, Lancaster co., State Capital Hotel.

Deputy Superintendents of Common Schools—Henry Houck, Lebanon county; Robert Curry, Allegheny county.

Financial Clerk—W. A. Lindsey, Cumberland county, United States Hotel.

Statistical Clerk—John T. Boyle, Schuylkill county, Two-and-a-Half street.

Recording Clerk—Jos. N. Beistle, Crawford county, Front street near Boas.

Messenger—R. A. Lucas, Centre county, 911 North Third street.

SOLDIERS' ORPHAN SCHOOL DEPARTMENT.

Superintendent—James P. Wickersham, Lancaster co., State Capital Hotel.

Male Inspector—C. Cornforth, M'Kean county, State Capital Hotel.

Female Inspector—Mrs. E. E. Hutter, 614 Race street, Philadelphia.

Chief Clerk—James L. Paul, Westmoreland county, 609 Front street.

Clerk—Edmund R. Sutton, Indiana county, Sixth above Boas street.

ADJUTANT GENERAL'S DEPARTMENT.

Adjutant General—James W. Latta, Philadelphia, Lochiel Hotel.

Chief Clerk—George C. Kelly, Union county, Second and Herr streets.

- Recording and Pay Department Clerk*—Joseph Liness, Dauphin county, Herr street near Second.
- Ordinance Clerk*—William K. Russell, Dauphin county, 303 Briggs street.
- Keeper of State Arsenal*—C. W. Diven, Lawrence county, Seventeenth st., near Arsenal.
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INSURANCE DEPARTMENT.

- Insurance Commissioner*—J. M. Forster, Dauphin county, 303 S. Front st.
- Deputy Insurance Commissioner*—L. R. Boggs, Huntingdon county, North Front street.
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STATE LIBRARY.

- State Librarian*—Rev. O. H. Miller, Allegheny county, 227 Herr street.
- Assistant Librarian*—Joseph R. Orwig, Union county, 313 N. Second street.

SUPERINTENDENT OF PUBLIC PRINTING.

- Joshua W. Jones, Dauphin county, Third street above Chestnut.

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PHILADELPHIA.

First district, 1st, 2d and 26th wards—Geo. Handy Smith, R., 1514 South Fifth street.

Second district, 3d, 4th, 5th, 6th and 11th wards—David A. Nagle, D., 468 Locust street.

Third district, 16th, 17th, 18th and 20th wards—John Lamon, R., 1303 Marlboro' street.

Fourth district, 21st, 22d, 24th and 27th wards—Horatio Gates Jones, R., No. 133 South Fifth street.

Fifth district, 15th, 28th and 29th wards—E. W. Davis, R., 1419 North Sixteenth street.

Sixth district, 7th, 8th and 9th wards—A. K. Dunkel, R., Office Sunday Republic.

Seventh district, 10th, 12th, 13th and 14th wards—Hiram Horter, R., 2032 Vine street.

Eighth district, 19th, 23d and 25th wards—Jacob Crouse, R., Second street below Arch.

IX—DELAWARE.

Thomas V. Cooper, R., Media.

X—BUCKS.

Harman Yerkes, D., Doylestown.

XI—BERKS.

Daniel Ermentrout, D, Reading.

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XIII—LANCASTER.

John B. Warfel, R., Lancaster.

XIV—LANCASTER.

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XVII—LEBANON.

Jacob G. Heilman, R., Jonestown.

XVIII—NORTHAMPTON.

S. C. Shimer, IND. D., Bethlehem.

XIX—CHESTER.

Robert L. M'Clellan, R., Cochranville.

XX—LUZERNE.

W. H. Stanton, D., Scranton.

XXI—LUZERNE.

H. B. Payne, R., Wilkesbarre.

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Charlton Burnett, D., Stroudsburg, Monroe county.

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R. P. Allen, D., Williamsport, Lycoming county.

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Butler B. Strang, R., Westfield, Tioga county.

XXVI—SUSQUEHANNA AND WAYNE.

W. W. Watson, R., Montrose, Susquehanna county.

XXVII—UNION, SNYDER AND NORTHUMBERLAND.

A. H. Dill, D., Lewisburg, Union county.

XXVIII—YORK.

H. G. Bussey, D., Shrewsbury.

XXIX—SCHUYLKILL.

O. P. Bechtel, D., Pottsville.

XXX—SCHUYLKILL.

John P. Colihan, D., Ashland.

XXXI—PERRY, MIFFLIN AND JUNIATA.

Joseph S. Waream, D., Lewistown, Mifflin county.

XXXII—CUMBERLAND AND ADAMS.

James Chestnut, D., Shippensburg, Cumberland county.

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Chambers M'Kibben, D., Chambersburg.

XXXIV—CLINTON, CLEARFIELD AND CENTRE.

T. J. Boyer, D., Clearfield, Clearfield county.

XXXV—BLAIR AND CAMBRIA.

John A. Lemon, R., Hollidaysburg, Blair county.

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E. D. Yutzy, R., Ursina, Somerset county.

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R. C. Winslow, R., Punxsutawny, Jefferson county.

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D. P. Thomas, D., Tionesta, Forest county.

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James W. Hayes, D., Harvey's, Greene county.

XLI—BUTLER AND ARMSTRONG.

S. M. Jackson, R., Apollo, Armstrong county.

XLII—ALLEGHENY.

Hugh M'Neill, R., Allegheny City.

XLIII—ALLEGHENY.

George H. Anderson, R., Pittsburg.

XLIV—ALLEGHENY.

John C. Newmyer, R., No. 89 Fifth avenue, Pittsburg.

XLV—ALLEGHENY.

E. A. Wood, D., South Pittsburg.

XLVI—BEAVER AND WASHINGTON.

George V. Lawrence, R., Monongahela City, Washington county.

XLVII—LAWRENCE AND MERCER.

F. H. Braggins, R., Mercer, Mercer county.

XLVIII—WARREN AND VENANGO.

W. S. M'Mullen, R., Oil City, Venango county.

XLIX—ERIE.

Henry Butterfield, R., Erie.

L—CRAWFORD.

George K. Anderson, R., Titusville.

Republicans	29
Democrats	21

MEMBERS OF THE HOUSE OF REPRESENTATIVES.

PHILADELPHIA.

- First district, 1st ward*—Wm. S. Douglass, R., 519 Moore street.
Wm. Graham, R., 1522 S. Ninth street.
- Second district, 2d ward*—John E. Kennedy, D., 706 Federal street.
John Holland, D., 936 S. Ninth street.
- Third district, 3d ward*—James L. Marshall, D., 734 Passyunk avenue.
- Fourth district, 4th ward*—James J. Monaghan, D., Fourth ward.
- Fifth district, 5th ward*—Emile J. Petroff, R., Fourth street.
- Sixth district, 6th ward*—Theo. F. Miller, D., 516 Race street.
- Seventh district, 7th ward*—Wm. H. Patterson, R., 1901 South street.
J. Granville Leach, R., 733 Walnut street.
- Eighth district, 8th ward*—Edward A. Good, R., 709 Spruce street.
- Ninth district, 9th ward*—Jacob Spicer, D., Ninth ward.
- Tenth district, 10th ward*—G. W. Hall, R., 1131 Arch street.
- Eleventh district, 11th ward*—Albert Crawford, D., 139 Noble street.
- Twelfth district, 12th ward*—Charles R. Gentner, D., 314 Brown street.
- Thirteenth district, 13th ward*—Wm. H. Vogdes, R., 543 N. Seventh street.
- Fourteenth district, 14th ward*—James Devereux, R., 1002 Nectarine street.
- Fifteenth district, 15th ward*—John E. Reyburn, R., 1820 Spring Garden st.
Harry Huhn, R., 802 North Sixteenth street.
Edwin Montgomery, R., 2602 Brown street.
- Sixteenth district, 16th ward*—M. V. B. Conrad, D., 804 and 806 N. Fourth st.
- Seventeenth district, the 5th, 6th, 7th, 8th, 9th, 10th, 11th, 12th, 13th, and 14th divisions of the 17th ward*—John E. Faunce, D., 512 Walnut street.
- Eighteenth district, the 1st, 2d, 3d and 4th divisions of the 17th ward and the 18th ward*—William J. Roney, R., 1319 North Front street.
George A. Bakeoven, R., 829 East Girard avenue.
- Nineteenth district, 19th ward*—William Ringgold, R., 2117 North Fifth st.
Robert Gillespie, R., 2448 Kensington ave.
Thomas J. Rice, R., 2533 Lee street.
- Twentieth district, 20th ward*—John N. Wood, R., 1400 Mervin street.
Harry M. Quirk, R., 1239 Stiles street.
- Twenty-first district, 21st and 28th wards*—Josephus Yeakel, R., 160 Levering street, Twenty-first ward.
- Twenty-second district, 22d ward*—Joseph M. Hill, R., Adams above Rittenhouse, Twenty-second ward.
- Twenty-third district, 23d ward*—Chas. B. Salter, R., Frankford.
- Twenty-fourth district, 24th ward*—James Newell, R., 606 Preston street.
- Twenty-fifth district, 25th ward*—George L. Pallatt, D., 3255 York avenue, Rising Sun P. O.

Twenty-sixth district, 26th ward—Harry O'Neill, R., 2015 Catharine street.

Joseph R. Souder, R., 1314 S. Tenth st.

Twenty-seventh district, 27th ward—Jno. W. Leigh, R., 3801 Spruce street.

Twenty-eighth district, 29th ward—Frank Fredericks, R., 2212 Oxford street.

ADAMS.

E. W. Stahle, D., Mummasburg.

Daniel Geiselman, D., M'Sherrystown.

ALLEGHENY.

First district—John Swan, D., Allegheny City.

W. H. Graham, R., Allegheny City.

H. M. Long, R., Allegheny City.

Second district—John M. Irwin, D., Pittsburg.

G. C. Shidle, D., 59 Smithfield street, Pittsburg.

Third district—Peter Zern, D., 400 Penn avenue, Pittsburg.

Fourth district—S. F. Patterson, D., Pittsburg.

Joseph Hayes, D., Pittsburg.

Joseph M. Carson, D., Pittsburg.

J. R. Thornton, D., Pittsburg.

Fifth district—B. C. Christy, R., 160 Fourth avenue, Pittsburg.

S. P. Large, D., Pittsburg.

Sixth district—D. J. Rogers, D., Mansfield.

Andrew Large, D., Pittsburg.

ARMSTRONG.

Robert Thompson, R., Templeton.

A. W. Bell, R., Brady's Bend.

BEAVER.

Joseph Graff, D., Beaver Falls.

C. I. Wendt, R., New Brighton.

BEDFORD.

G. H. Spang, D., Bedford.

William Keyser, D., New Buena Vista.

BERKS.

First district—Jacob Miller, D., Reading.

A. B. Wanner, D., Reading.

Second district—A. Smith, D., Wernersville.

B. E. Dry, D., Drysville.

Joseph B. Conrad, D., Bernville.

Nicholas Andre, D., Coalbrookdale.

BLAIR.

J. C. Everhart, D., Martinsburg.

I. H. Rawlins, R., Hollidaysburg.

BRADFORD.

George Moscrip, R., Windham Centre.
E. G. Tracy, R., Sylvania.
Uriah Terry, D., Terrytown.

BUCKS.

J. Miles Jamison, D., Richborough.
J. W. Carver, D., Erwinna.
Legrand Leaw, D., Attleboro'.
J. Paul Knight, R., Feasterville.

BUTLER.

A. L. Campbell, R., Petrolia.
Joseph S. Lusk, D., Harmony.

CAMBRIA.

John Hannan, D., Johnstown.
John Buck, D., Carroltown.

CAMERON.

John W. Phelps, R, Emporium.

CARBON.

James A. Harvey, D., Buck Mountain.
A. J. Durling, D, Lehighton.

CENTRE.

S. T. Shugert, D., Bellefonte.
W. K. Alexander, D., Millheim Centre.

CHESTER.

E. W. Baily, R., Penningtonville.
P. G. Carey, R., Phoenixville.
George F. Smith, R., West Chester.
John P. Edge, R., Downingtown.

CLARION.

Martin Williams, D., New Bethlehem.
J. H. Wilson, D., Reedsburg.

CLEARFIELD.

W. R. Hartshorne, D., Curwensville.

CLINTON.

George A. Achenbach, D., Lock Haven.

COLUMBIA.

E. J. M'Henry, D., Stillwater, Columbia county.
S. P. Ryan, D., Ashland, Schuylkill county.

CRAWFORD.

S. H. Findley, R., East Fallowfield.
 W. C. Plummer, D., Titusville.
 R. H. Sturtevant, D., Spring.
 S. J. Logan, D., Hartstown.

CUMBERLAND.

W. B. Butler, D., Mount Holly Springs.
 George W. Mumper, D., New Cumberland.

DAUPHIN.

First district—R. R. Chrisman, R., Harrisburg.
Second district—A. Fortenbaugh, R., Halifax.
 Joseph H. Nisley, R., Middletown.

DELAWARE.

W. Cooper Talley, D., Media.
 William Worrall, D., Chester.

ELK.

Sebastian Wimmer, D., St. Mary's.

ERIE.

First district—William Henry, D., Erie.
Second district—W. W. Brown, R., Corry.
 F. S. Chapin, R., Wattsburg.
 Orlando Logan, R., Albion

FAYETTE.

James Darby, D., Uniontown.
 T. Robb Deyarmon, D., Dawson.

FOREST.

J. B. Agnew, R., Tionesta.

FRANKLIN.

Hastings Gehr, R., Chambersburg.
 M. A. Embick, D., Greencastle.
 Simon Lecron, D., Waynesboro'.

FULTON.

H. S. Wishart, D., Harrisonville.

GREENE.

Morgan R. Wise, D., Waynesburg.

HUNTINGDON.

W. P. M'Nite, D., Shirleysburg.
 H. H. Mateer, R., Mill Creek.

INDIANA.

A. W. Kimmell, R., Indiana.

J. K. Thompson, R., Brady.

JEFFERSON.

R. B. Brown, D., Summerville.

JUNIATA.

Jerome Hetrick, D., Mexico.

LANCASTER.

First district—D. P. Rosenmiller, Jr., R., Lancaster.

Second district—Amos H. Mylin, R., Lancaster.

Wm. M'Gowan, R., Christiana.

Third district—George H. Ettla, R., Marietta.

A. H. Summy, R., Mount Joy.

J. A. Stober, R., Shoeneck.

LAWRENCE.

E. S. N. Morgan, R., New Castle.

John Q. Stewart, R., Enon Valley.

LEBANON.

Isaac Hoffer, R., Lebanon.

William H. Hostetter, R., Myerstown.

LEHIGH.

James Kimmett, D., Catasauqua.

John H. Fogel, D., Fogelsville.

George T. Gross, D., Allentown.

LUZERNE.

First district—Charles A. Miner, R., Wilkesbarre.

Second district—T. H. B. Lewis, D., Kingston.

Third district—J. J. Shonk, (Prohibitionist,) R., Plymouth.

Fourth district—J. C. Fincher, D., Hazleton.

Fifth district—James M'Asey, D., Goldsboro'.

Sixth district—F. W. Gunster, D., Scranton.

M. F. Lynott, D., Scranton.

Seventh district—C. R. Gorman, D., Pittston.

Eighth district—T. W. Loftus, IND., Olyphant.

LYCOMING.

Oliver H. Reighard, D., Williamsport.

John Gaffey, D., Salladasburg.

George Steck, D., Hughesville.

M'KEAN.

John C. Backus, D., Smethport.

MERCER.

E. W. Jackson, R., Mercer.
 H. S. Blatt, R., Sandy Lake.
 G. W. Reed, R., Wheeler.

MIFFLIN.

Joseph W. Parker, D., Lewistown.

MONROE.

William Kistler, D., East Stroudsburg.

MONTGOMERY.

Thomas G. Rutter, D., Pottstown.
 Joseph B. Yerkes, D., Horsham.
 Francis M. Knipe, D., Frederick.
 John C. Richardson, D., Bridgeport.
 James B. Law, D., Ardmore.

MONTGOMERY.

James Cruikshank, R., Danville.

NORTHAMPTON.

John Stotzer, D., Easton.
 A. J. Erwin, D., Bethlehem.
 Elias Scholl, D., Martin's Creek.

NORTHUMBERLAND

Jesse J. John, R., Shamokin.
 W. P. Withington, D., Shamokin.

PERRY.

George N. Reutter, D., Benvenue, Dauphin county.

PIKE.

E. B. Eldred, D., Milford.

POTTER.

C. Hollenbeck, D., Coudersport.

SCHUYLKILL.

First district—John W. Morgan, R., Shenandoah.
Second district—Charles J. Loudenslager, R., Sacramento.
Third district—Joshua Boyer, D., M'Keansburg.
Fourth district—S. A. Losch, R., Schuylkill Haven.
 Wm. J. Lewis, R., Tremont.
 Fred. L. Foster, D., Pottsville.

SNYDER.

G. Alfred Schoch, R., Middleburg.

SOMERSET.

William Endsley, R., Somerfield.
 Joseph D. Miller, R., Mineral Point.

SULLIVAN.

Richard Bedford, D., Campbellville.

SUSQUEHANNA.

Samuel Falkenbury, R., Susquehanna Depot.

W. W. Williams, R., South Gibson.

TIOGA.

John I. Mitchell, R., Wellsboro'.

Wm. T. Humphrey, R., Osceola.

UNION.

Charles S. Wolfe, R., Lewisburg.

VENANGO.

Wm. Hasson, D., Oil City.

J. P. Park, D., Franklin.

J. M. Dickey, R., Franklin.

WARREN.

George W. Allen, R., Tidioute.

WASHINGTON.

J. K. Billingsley, R., California.

W. G. Barnett, D., Canonsburg.

J. Birch, D., Claysville.

WAYNE.

Thomas Y. Boyd, R., Eldred.

Warren W. Mumford, R., Starucca.

WESTMORELAND.

H. B. Piper, D., Greensburg.

James L. Toner, D., New Derry.

Thompson M'Lean, D., Smithton.

WYOMING.

Giles Roberts, R., Falls.

YORK.

Emanuel Myers, D., Dillsburg.

Adam Stevens, D., Goldsboro'.

George Anstine, D., Stewartstown.

John B. Gemmil, D., New Park.

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ORGANIZATION OF COUNTIES.

Names and date; day, month and year of the erection of the several counties of the Commonwealth of Pennsylvania, and the territory from which they were formed; the three first counties which were formed, to wit: Philadelphia, Bucks and Chester, were established at the first settlement of the Province of Pennsylvania, and formed the only original counties of all that territory of which the now great State is formed, comprised of sixty-six counties, as follows, viz.:

1. Adams, January 23, 1800, formed of a part of York.
2. Allegheny, September 24, 1788, formed of a part of Westmoreland and Washington.
3. Armstrong, March 12, 1800, formed of a part of Allegheny, Westmoreland and Lycoming.
4. Beaver, March 12, 1800, formed of a part of Allegheny and Washington.
5. Bedford, March 9, 1771, formed of part of Cumberland.
6. Berks, March 11, 1752, formed of part of Philadelphia, Chester and Lancaster.
7. Blair, February 26, 1846, formed of a part of Huntingdon and Bedford.
8. Bradford, February 21, 1810, formed of a part of Luzerne and Lycoming.*
9. Bucks, one of the original counties of the Province,† 1682.
10. Butler, March 12, 1800, formed of a part of Allegheny.
11. Cambria, March 25, 1804, formed of a part of Huntingdon, Somerset and Bedford.
12. Cameron, March 29, 1860, formed of a part of Clinton, Elk, M'Kean and Potter.
13. Carbon, March 13, 1843, formed of a part of Northampton and Monroe.
14. Centre, February 13, 1800, formed of a part of Mifflin, Northumberland, Lycoming and Huntingdon.
15. Chester, one of the original counties established at the first settlement of the Province, 1682.
16. Clarion, March 11, 1839, formed of a part of Venango and Armstrong.
17. Clearfield, March 26, 1804, formed of a part of Lycoming and Northumberland.

* Previous to March 24, 1812, this county was called Ontario, but its name was changed to Bradford on that day.

† Bucks county was one of the three original counties established at the first settlement of the Province of Pennsylvania; the other two being Philadelphia and Chester.—See *Votes of the Assembly*, Vol. 1.

18. Clinton, June 21, 1839, formed of a part of Lycoming and Centre.
19. Columbia, March 22, 1813, formed of a part of Northumberland.
20. Crawford, March 12, 1800, formed of a part of Allegheny.
21. Cumberland, January 27, 1750, formed of a part of Lancaster.
22. Dauphin, March 4, 1785, formed of a part of Lancaster.
23. Delaware, September 26, 1789, formed of a part of Chester.
24. Elk, April 18, 1843, formed of a part of Jefferson, Clearfield and M'Kean.
25. Erie, March 12, 1800, formed of a part of Allegheny.
26. Fayette, September 26, 1783, formed of a part of Westmoreland.
27. Forest, April 11, 1848, formed from a part of Jefferson and Venango.*
28. Franklin, September 9, 1784, formed from a part of Cumberland.
29. Fulton, April 19, 1850, formed from a part of Bedford.
30. Greene, February 9, 1796, formed from a part of Washington.
31. Huntingdon, September 20, 1787, formed from a part of Bedford.
32. Indiana, March 30, 1803, formed from a part of Westmoreland and Lycoming.
33. Jefferson, March 26, 1804, formed from a part of Lycoming.
34. Juniata, March 2, 1831, formed from a part of Mifflin.
35. Lancaster, May 10, 1729, formed from a part of Chester.
36. Lawrence, March 28, 1849, formed from a part of Beaver and Mercer.
37. Lebanon, February 16, 1813, formed from a part of Dauphin and Lancaster.
38. Lehigh, March 6, 1812, formed from a part of Northampton.
39. Luzerne, September 25, 1786, formed from a part of Northumberland.
40. Lycoming, April 13, 1795, formed from a part of Northumberland.
41. M'Kean, March 26, 1804, formed from a part of Lycoming.
42. Mercer, March 12, 1800, formed from a part of Allegheny.
43. Mifflin, September 19, 1789, formed from a part of Cumberland and Northumberland.
44. Monroe, April 1, 1836, formed from a part of Northampton and Pike.
45. Montgomery, September 10, 1784, formed from a part of Philadelphia.
46. Montour, May 3, 1850, formed from a part of Columbia.
47. Northampton, March 11, 1752, formed from a part of Bucks.
48. Northumberland, March 21, 1772, formed from parts of Lancaster, Cumberland, Berks, Bedford and Northampton.
49. Perry, March 22, 1820, formed from a part of Cumberland.
50. Philadelphia, one of the original counties established at the first settlement of the Province, 1682.
51. Pike, March 26, 1814, formed from a part of Wayne.
52. Potter, March 26, 1804, formed from a part of Lycoming.

*Part of Venango added by act approved October 31, 1863.

53. Schuylkill, March 1, 1811, formed from a part of Berks and Northampton.
54. Snyder, March 2, 1855, formed from a part of Union.
55. Somerset, April 17, 1795, formed from a part of Bedford.
56. Sullivan, March 15, 1847, formed from a part of Lycoming.
57. Susquehanna, February 21, 1810, formed from a part of Luzerne.
58. Tioga, March 26, 1804, formed from a part of Lycoming.
59. Union, March 22, 1813, formed from a part of Northumberland.
60. Venango, March 12, 1800, formed from a part of Allegheny and Lycoming.
61. Warren, March 12, 1800, formed from a part of Allegheny and Lycoming.
62. Wayne, March 21, 1798, formed from a part of Northampton.
63. Washington, March 28, 1781, formed from a part of Westmoreland.
64. Westmoreland, February 26, 1773, formed from a part of Bedford, and in 1785 part of the purchase of 1784 was added thereto.
65. Wyoming, April 4, 1842, formed from a part of Luzerne.
66. York, August 19, 1749, formed from a part of Lancaster.

COUNTIES AND COUNTY TOWNS OF PENNSYLVANIA.

DISTANCES OF COUNTY TOWNS FROM WASHINGTON AND HARRISBURG.

Name of County.	County towns.	Distance from Washington, Miles.	Distance from Harrisburg, Miles.
Adams.....	Gettysburg.....	117	69
Allegheny.....	Pittsburg.....	375	249
Armstrong.....	Kittanning.....	373	249
Beaver.....	Beaver.....	403	277
Bedford.....	Bedford.....	203	108
Berks.....	Reading.....	157	54
Blair.....	Holidaysburg.....	264	140
Bradford.....	Towanda.....	293	167
Bucks.....	Dcylestown.....	176	142
Butler.....	Butler.....	378	252
Cambria.....	Ebensburg.....	285	159
Cameron.....	Emporium.....	319	193
Carbon.....	Mauch Chunk.....	222	119
Centre.....	Bellefonte.....	216	149
Chester.....	West Chester.....	171	80
Clarion.....	Clarion.....	406	280
Clearfield.....	Clearfield.....	285	159
Clinton.....	Lock Haven.....	246	123
Columbia.....	Bloomsburg.....	207	81
Crawford.....	Meadville.....	473	347
Cumberland.....	Carlisle.....	144	18
Dauphin.....	Harrisburg.....	126	.....
Delaware.....	Media.....	156	123

COUNTY AND COUNTY TOWNS—*Continued.*

Name of County.	County towns.	Distance from Washington.	Distance from Harrisburg.
		Miles.	Miles.
Elk	Ridgway	351	225
Erie	Erie	469	343
Fayette	Uniontown	262	322
Forest	Tionesta	353	227
Franklin	Chambersburg	147	52
Fulton	M'Connellsburg	169	74
Green	Waynesburg	323	300
Huntingdon	Huntingdon	224	98
Indiana	Indiana	341	215
Jefferson	Brookville	327	201
Juniata	Mifflintown	175	49
Lancaster	Lancaster	123	38
Lawrence	New Castle	425	299
Lebanon	Lebanon	152	26
Lehigh	Allentown	193	90
Luzerne	Wilkesbarre	247	121
Lycoming	Williamsport	221	95
M'Kean	Smethport	388	262
Mercer	Mercer	443	317
Mifflin	Lewistown	187	61
Monroe	Stroudsburg	254	139
Montgomery	Norristown	160	96
Montour	Danville	195	69
Northampton	Easton	210	107
Northumberland	Sunbury	181	55
Perry	New Bloomfield	160	54
Philadelphia	Philadelphia	142	108
Pike	Milford	326	276
Potter	Coudersport	345	219
Schuylkill	Pottsville	192	89
Snyder	Middleburg	185	59
Somerset	Somerset	238	200
Sullivan	Laporte	237	111
Susquehanna	Montrose	305	179
Tioga	Wellsboro'	303	177
Union	Lewisburg	190	64
Venango	Franklin	435	309
Warren	Warren	403	277
Washington	Washington	298	275
Wayne	Honesdale	296	170
Westmoreland	Greensburg	344	218
Wyoming	Tunkhannock	289	163
York	York	98	28

AGRICULTURE—ITS EARLY HISTORY AND DEVELOPMENT IN PENNSYLVANIA AND ITS PRESENT STATUS.

In March, 1681, King Charles II, of England, granted to Willim Penn, of Worminghurst, Sussex county, England, "concessions to purchasers of lands." This grant comprised a territory of forest land, consisting of about twenty-six million acres, now embraced in the Commonwealth of Pennsylvania, situated between $39^{\circ} 43'$ and 42° north latitude, and $2^{\circ} 17'$ east and $3^{\circ} 31'$ west longitude from the present Capital of the United States. Its mean length being 280.39 miles, mean breadth 158.05 miles, its greatest length 302.1340 miles and greatest breadth 175 miles 192 perches.

A portion of the land embraced in the concession to William Penn, interfered with prior grants made to the founders of Maryland, which, after some considerable difficulty, was finally amicably adjusted.

The lands of Penn were offered for sale in lots or tracts of one thousand acres each, at the rate of a penny an acre.

In the fall of 1681 two ships laden with emigrants, acting under the direction of Penn, landed on the shore of the Delaware and soon after commenced a settlement just above the entrance of the Schuylkill. This party had received instructions from Penn prior to their embarkation, to lay the foundation of a city that would be unlike the crowded and unhealthy cities of Europe. It was to be planted with gardens around each house in such a manner as to present the appearance of a "greene country towne." Here, where now is one of the greatest commercial cities of America (Philadelphia) was planted the germ that has ripened and brought forth fruit in the agricultural development of the Commonwealth.

William Penn, by adopting a judicious and humane course with the Indians in making treaties with them and purchasing their rights to the soil, was enabled to penetrate the valleys of the Delaware, Schuylkill and Susquehanna, and open them up to the settlement of the Anglo-Saxon race. The implements of husbandry were rude in the extreme when compared with those of the present day; but the virgin soil responded plenteously to the touch of the early settler.

The abundant supply of fish in the rivers of Pennsylvania and the wild game in her forests materially assisted the settler in providing for his table. Men who had seemed devoid of ambition, who had led a dreamy and inactive life in the old world, when once placed in the western hemisphere, breathing the free and pure air of a virgin Continent, were stimulated into activity. Within less than fifty years from the date of the first settlement at Philadelphia, the cabin of the bold and daring settler had been erected along the banks of the Susquehanna a hundred miles or more in the interior. Indeed, so prosperous had been the Colony planted by Penn, on the banks of the Delaware, that he, in 1690, contemplated the founding of a second city to be located upon the banks of the Susquehanna, as will appear from the following circular letter, which he published and caused to be sold and distributed in the principal cities of Europe.

“WHEREAS,” “I did about nine years past propound the selling of several
“parts or shares of land, upon that side of the Province of Pennsylvania,
“next Delaware river, and setting out of a place upon it for the building
“of a city by the name of Philadelphia; and that divers persons closed
“with those proposals, who, by their ingenuity, industry and charge, have
“advanced that city from a wood to a good forwardness of building; there
“being above one thousand houses finished in it, and that the several plan-
“tations and towns begun upon the land bought by those first undertakers,
“are also in a prosperous way of improvement and enlargement (insomuch
“as last year ten sail of ships were freighted there with the growth of the
“Province for Barbados, Jamaica, etc., besides what came directly for this
“Kingdom, (Great Britain). It is now my purpose to make another settle-
“ment upon the Susquehannagh, that runs into the Bay of Chesapeake,
“and bears about fifty miles west from the river Delaware, as appears by
“the Common Maps of the English Dominion in America. There I design
“do lay out a plan for the building of an other city, in the most convenient
“place for communication with the former plantations on the East; which
“by land is as good as done already, a way being laid out between the two
“rivers very exactly and conveniently at least three years ago; and which
“will not be hard to do by water by the benefit of the river Scoukill; for
“a Branch of that river lies near a Branch that runs into Susquehannagh
“River and is to Common Course of the Indians with their skins and Furs
“into our Parts and to the Provinces of East and West Jersey and New
“York, from the West and Northwest parts of the Continent from whence
“they bring them. And I do also intend that every one who shall be a
“Purchaser in this proposed settlement shall have a proportionable lot in
“the said city to build a house or Houses upon, which Town Ground and
“the Shares of Land that shall be bought of me, shall be delivered clear
“of all Indian Pretentions; for it has been my way from the first to pur-
“chase their title from them and so settle with their Consent.

“The shares I dispose of contain each three thousand acres for £100, and
 “for greater or lesser quantities after that rate. The acre of that Province
 “is according to the statute of the 33d of Edw. I. And no acknowledgement or Quit Rent shall be paid by the Purchasers till five years after a
 “settlement be made upon their Lands, and that only according to the
 “quantity of acres so taken up and seated, and not otherwise; and only
 “then to pay but one shilling for every hundred acres forever. And further
 “I do promise to agree with every Purchaser that shall be willing to treat
 “with me, between this and next spring upon all such reasonable conditions
 “as shall be thought necessary for their accommodation, intending, if God
 “pleases, to return with what speed I can and my family with me in order
 “to our future Residence.

“To conclude: that which particularly recommends this settlement is
 “the known goodness of the *soyll* and *scituation* of the land which is high
 “and not mountainous; also, the Pleasantness and Largeness of the River
 “being clear and not rapid, and broader than the Thames at London
 “Bridge, many miles above the Place intended for this Settlement; and
 “runs as we are told by the Indians quite through the Province into which
 “many fair rivers empty themselves. The sorts of timber that grows there
 “are chiefly oak, ash, chestnut, walnut, cedar and poplar. The native
 “fruits are Pawpaws, grapes, Mulberry, Chestnuts and several sorts of
 “Walnuts. There are likewise great quantities of Deer and especially
 “Elks, which are much bigger than our Red Deer and use that River in
 “Herds. And Fish there is of divers sorts and very large and good and
 “in great plenty.

“But that which recommends both this Settlement in particular and the
 “Province in general is a late *Pattent* obtained by divers, eminent Lords
 “and Gentlemen for that Land that lies north of Pennsylvania, up to the
 “46 Degree and a half because their Traffick and Intercourse will be chief-
 “ly through Pennsylvania, which lies between that Province and the sea.

“We have also the comfort of being the center of all the English Colo-
 “nies upon the Continent of America as they lie from the North East parts
 “of New England to the most southerly parts of Carolina, being above one
 “thousand miles upon the coasts.

If any Persons please to apply themselves to me by letter in relation to
 “this affair, they may direct them to Robert Ness, Scrivener in Lumber
 “street, in London, for Philip Ford, and suitable answers will be returned by
 “the first opportunity. There are also Instructions printed for information
 “of such as intend to go or send servants or families thither which way
 “they may proceed with most ease and advantage, both here and there in
 “reference to Passage, Goods, Utensels, Building, Husbandry, Stock, Sub-

“sistence, Traffic, &c., being the effects of their expence and Experience, that have seen the fruits of their labors.

“ WILLIAM PENN.

“ Printed and sold by Andrew Sowle at the crooked Billet in Halloway “Lane Shore Ditch, 1690”---George H. Morgan’s annals of Harrisburg, 1858.

The city he did not live to found ; but he encouraged emigration to Pennsylvania, established schools and as a distinguished historian expressed it. “Was at once governor, magistrate, preacher, teacher and laborer.”

He died the 30th day of July, 1718, at Rushcomb in Berkshire, England, aged 74—during the thirty-seven years of his Proprietorship he developed, in an unusual degree, the Educational, Agricultural and Commercial interests of the Province of Pennsylvania.

In carrying out his instructions, the proprietary government in 1736 and prior treaties had extinguished, by purchase, the Indian title to lands now composed of the counties of Adams, York, Cumberland, Lebanon, Berks and Lehigh ; and in 1749 the lands in Dauphin, Schuylkill, Carbon, Monroe and Pike ; and in 1754 the Indian title was relinquished in Bedford, Fulton, Huntingdon, Blair, Mifflin, Juniata, Perry, Snyder and Centre ; in 1768, Allegheny, Washington, Greene, Fayette, Somerset, Westmoreland, Indiana, Cambria, Union, Northumberland, Montour, Columbia, Luzerne, Wayne, Susquehanna and Sullivan, leaving the north, the west and north-western area of the State, now composed of the counties of Bradford, Tioga, Potter, M’Kean, Warren, Crawford, Mercer, Venango, Forest, Elk, Cameron, Clinton, Clearfield, Jefferson, Clarion, Armstrong, Butler, Beaver and Lawrence to be extinguished by the Colonial government in 1784, and the later purchase of the triangle at Erie of the United States government, in 1792, to complete the entire extinguishment of the Indian title to the present limits of Pennsylvania.

So far advanced in agriculture was Pennsylvania, during the French and Indian wars, which occurred in 1754-5-6, that she was enabled to furnish a large portion of the subsistence for General Braddock and the Virginia riflemen, and in 1776, when the bell in the old Independence Hall first rang out the glad tidings, proclaiming the Declaration of Independence of the thirteen Colonies, Pennsylvania stood second with her sisters in agricultural and commercial wealth, with an industrious population of three hundred and eighty thousand.

At the Centennial anniversary of her settlement, in 1781, she was bearing a great portion of the burden of the war for Independence, her soldiers being found upon every battle-field, and the productions of her soil and workshops entered largely into the common stock for national subsistence and defense.

The colonial government of Pennsylvania was established July 15th, 1776. The proprietary government was at that time superseded by the colonial and a Constitution was adopted and an assembly chosen by the free-men of the Province ; a president and Supreme Executive Council organized, thereby laying the foundation for a more perfect system of government, which has subsequently been amended in 1790, 1838 and 1873. The production of wheat within her borders at the first centennial could not have been less than three and a half million of bushels. This added to the great quantities of rye, Indian corn and buckwheat made an aggregate in bread stuffs, equal to eight million bushels of wheat, a quantity more than sufficient to support her population and leave a large margin for exportation.

Soon after the close of the revolutionary war, viz : in 1785, the Philadelphia Society for Promoting Agriculture was organized. Hon. Richard Peters, Hon. George Clymer and Dr. James Mease performed a very conspicuous part in conducting its affairs. "The society continued to meet regularly " for several years and published numerous communications from practical " men in the newspapers of the day on various interesting subjects ; and " thereby contributed to diffuse the knowledge of many improvements in " agriculture ; the general adoption whereof has visibly tended to increase " the product and improve the qualities of the soil of Pennsylvania."

Prominent gentlemen of various sections of the State of Pennsylvania together with those of other States and foreign countries were correspondents and members of this society. We find the names of Daniel Buckley, of Lancaster county, Pa. ; A. McCallister, of Harrisburg ; David Moore, Chester county ; John Dickinson, of Delaware ; Robert Barclay, of Berry Hill, Sussex county, England ; Thomas Jefferson, Monticello, Va. ; John Armstrong, late minister of United States to France ; Andrew F. Michaux, Paris, France ; General George Washington and hundreds of other distinguished agriculturists and scientific gentlemen attaching themselves to this society, and promoting its interests by their experience and presence.

The State and country at large owe much of their general prosperity to the information diffused by this society.

An enumeration of the inhabitants in Pennsylvania, in 1790, showed that the population was four hundred and thirty-four thousand three hundred and seventy. Settlers had located upon her lands from the Delaware, in the east, to the Ohio on the west, and some even crossing over her borders into Ohio and into the southern tier counties of New York. At the commencement of the nineteenth century her population had increased to six hundred and two thousand three hundred and sixty-five ; being a gain in ten years of one hundred and sixty-seven thousand nine hundred and ninety-two. The general diffusion of agricultural knowledge by the Philadelphia Society for the Promotion of Agriculture, had quietly stimulated the

agriculturist and manufacturer, thereby preparing the Commonwealth to rely more upon her own production and resources which was so severely put to the test, by the order of May 16, 1806, declaring all the ports and rivers from the Elbe, in Germany, to Brest in France, in a state of blockade; and from Bonaparte, in November of the same year, declaring all the ports in the British islands blockaded. Six years later the declaration of war called forth the native energy, patriotism and resources of the State. The edicts of 1806, although intended to check our commerce, had the effect to direct our citizens to the necessity of home manufacture. The population of the State, in 1810, was eight hundred and ten thousand and ninety-one. The fertile lands continued to be settled by industrious and hardy pioneers. Two hundred and seven thousand seven hundred and twenty-six was the increase in population in the past ten years. There were four million twenty-four thousand six hundred and forty bushels of wheat ground in the mills of Pennsylvania, beside the amount shipped to various States and countries, an account of which we have been unable to ascertain. During the year 1809 Lancaster county millers produced ninety-nine thousand barrels of flour; and Northumberland, a county situated a hundred and sixty miles north from Philadelphia, upon the Susquehanna river, produced one hundred and five thousand barrels. Of course these counties were greater in area than at present. Manufactories were correspondingly increased in numbers and variety. The productions of the spindle, loom, forge and workshop were materially accelerated and developed. The people seemed to act upon the principle that "agriculture, commerce and manufactures are sympathetic." A few years subsequent to the war to which we have alluded, we approach a point when Pennsylvania entered upon that era of progress and public improvement for which she has been so peculiarly distinguished. Notwithstanding the war had in a measure checked emigration, we find that in 1820, Pennsylvania contained a population of one million forty-seven thousand five hundred and seven, an increase of two hundred and thirty-seven thousand four hundred and sixteen in the last decade. Great improvements had been made in agricultural implements, enabling the farmer to cultivate the soil with greater facility, and to gather his crops with more certainty and celerity. The system of internal improvements (digging canals) carried on by the State, the establishment of furnaces, forges, cotton and woolen mills, the manufacture of lumber by private enterprise for the next ten years, afforded a ready market for the productions of the farmer.

Mr. Stewart Pierce, in his annals of Luzerne, estimates that Luzerne county in the year 1828, produced a surplus of one hundred and ninety thousand bushels of wheat, one thousand barrels of pork, five hundred bar-

rels of whisky, one hundred thousand bushels of corn, besides large quantities of other grains, valued in all at \$600,000.

The State contained in 1830 one million three hundred and forty-eight thousand two hundred and thirty-three inhabitants, a gain of three hundred and one thousand seven hundred and twenty-six in the past ten years. The productions of the farm were equal to this increase in population, even when many of the producers had chosen other fields of labor, as in the digging of canals, lumbering, opening and developing the iron and coal mines.

The agriculturist had not been content to cultivate the alluvial soils of the river valleys; but had located upon the hillsides and uplands of the Commonwealth.

Neither did the serious financial trouble transpiring from 1837 to 1842, materially check the production of cereals, nor retard the increase of population. The sturdy farmer of Pennsylvania, remained steadfast in his vocation and the teeming earth rewarded him for his faith and labor.

The increase in population from 1830 to 1840 was three hundred and seventy-five thousand and eight hundred, making a total population in the Commonwealth of one million seven hundred and twenty-four thousand and thirty-three. Let us select a few of the leading articles produced during the year 1839 and mark the result.

They produced :

Bushels of wheat.....	13,213,077
Do....oats.....	20,641,819
Do....corn.....	14,240,022
Do....barley.....	209,893
Do....buckwheat.....	2,113,742
Do....potatoes.....	9,535,663
Tons of hay.....	1,311,643
Pounds of wool.....	3,048,564

A careful estimate made up from the ruling prices of the above named products would show that they brought in market, sixty-five million dollars. The value of orchard products, market gardens, the sale of beef, pork, mutton, poultry, (neat) cattle and horses, &c., would swell the amount to many millions more. A hundred million dollars at least was the value of the agricultural products for the year 1839 in the State of Pennsylvania.

Every material interest of the State was thoroughly developed as far as it was in the power of the people and the State government to do so. The increase in population was over a half a million, being five hundred and eighty-seven thousand seven hundred and fifty-three, making the aggregate population two million three hundred and eleven thousand seven hundred

and eighty-six. Nearly nine million acres of land were under a fair state of cultivation, with an estimated cash value of four hundred and seven million eight hundred and seventy-six thousand and ninety-nine dollars. We herewith subjoin a list of some of the leading products together with the value of farming implements:

Cash value of farming implements.....	\$14,722,541
Cash value of orchard products.....	723,389
Cash value of market gardens..	688,714
Cash value of animals slaughtered.....	8,219,848
Cash value of all live stock.....	41,500,053
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Bushels of wheat raised.....	15,367,691
Bushels of rye raised.....	4,805,160
Bushels of Indian corn raised.....	19,835,214
Bushels of oats raised.....	21,538,156
Bushels of barley raised.....	165,584
Bushels of buckwheat raised.....	2,193,692
Tobacco, lbs.....	912,651
Wool, lbs.....	4,481,570

We now approach a period when the farmers of Pennsylvania were thoroughly aroused upon the subject of a State Agricultural Society.

County and local societies had been organized as early as 1785; but no State organization had ever been effected. The Philadelphia Society for Promoting Agriculture was early organized and had done much to disseminate agricultural experiments and facts pertaining to a variety of subjects. We cannot, however, better convey to the reader the *Status* of agriculture in 1850, than by extracting the following address, taken from the proceedings of the State Agricultural Society, Vol. 1, which ultimately resulted in the organization of State Society in January 1851:

ADDRESS TO THE FARMERS OF PENNSYLVANIA.

The Agricultural Society of Philadelphia, in its anxiety to promote the objects of its founders, and the advancement of the great interests for which it was instituted, desires respectfully to call your attention towards the founding of a State Agricultural Society, and to ask your aid in furtherance of the measure.

While it is a matter of surprise among the enlightened farmers of other States, who have formed or projected State Societies, it is cause of regret to many of our own citizens, that Pennsylvania, essentially agricultural, cannot yet boast of State Institution, combining the skill and experience of her intelligent agriculturists, to be made available in diffusing a general knowledge of improved systems of husbandry and tillage, and imparting energy and vigor to the most important of all her industrial pursuits.

In times past, with a comparatively sparse population, when means of intercommunication were limited and difficult, there was reasonable excuse for not having a State organization ; but now with our present facilities in the increase of population, with cities and towns dotting every portion of the State, and canals and railroads intersecting every quarter and running to every point, should the formation of a State Society be longer delayed, Pennsylvania will justly incur the reproach of culpable apathy, in standing listlessly still, while, in this our progressive age so many of our sister States, less favored by natural resources, are keeping pace with the times, in the advancement of their agriculture.

Though the project of a State Agricultural Society commends itself especially to the farmers themselves, yet it is not without claims upon the consideration of others, appealing as it does to their State pride, if not directly to their interests. Can the merchant or trader be indifferent to the main source from whence his warehouses and ships are filled and freighted? Can the manufacturer or mechanic thrive without an abundant supply of the staff of life? Or can the capitalist who embarks in railroad and canal stocks, expect remunerating dividends on his investments, unless the products of agriculture contribute to the tolls, especially on such lines as the Central railroad? And can the State ever expect to be relieved of the heavy debt under which she now staggers, if her waste and unproductive lands are not brought under profitable culture, and the farmers stimulated to increased exertion, to create active capital out of matter now inert and valueless? It needs no argument to prove, that if the farming interest is permitted to languish, every other industrial pursuit will exhibit corresponding signs of decay. It behooves, then, every citizen who regards his interests, as well as the farmer, to lend his aid to any feasible plan that will impart hope and energy to the tillers of the soil.

The first practical step in furtherance of this object is to establish a State institution, through the medium of which farmers can have a free interchange of opinion with each other upon the best means of promoting improvement in the theory and practice of agriculture, and the opportunity of exhibiting annually, at designated localities, their stock and implements, with the products of their fields and orchards. This is the desideratum, if attained, that will make Pittsburg, Chambersburg, Harrisburg, York, Lancaster, Reading and Easton as famous in the annals of agricultural fairs and cattle shows in Pennsylvania, as Rochester, Buffalo, Utica, Albany, &c., are in New York.

Among the causes that have led to the unexampled prosperity of New York of late years, none is more striking than the encouragement wisely bestowed upon her agriculture, by the Legislature of that State incorporating a State society, and granting some eight to ten thousand dollars an-

nually to its auxiliary societies, which has stirred up the energies of her farmers to compete successfully for the palm of distinction, even with her mercantile community. The great bulk of her western lands, but a few years back a wilderness, is now equal in value to the earliest cultivated lands of the State, and thickly settled with a wealthy, enterprising yeomanry, able and willing to contribute their quota of taxes to supply the treasury, by which the State is enabled to maintain her character and credit. It must, however, be admitted that her great canal did much towards the wonderful progress of New York, but without the impulse given to the farming interest, which secured to the canal an independent and increasing trade from within her own domain, that great public work would to this day have been comparatively profitless. The canal was indeed a noble work—the patronage bestowed upon her agriculture was a stroke of policy, as just as it was politic, and will ever redound to the credit of her statesmen and legislators.

The example of New York has not been lost on Ohio; the Legislature of this State has, within the last three or four years, established an agricultural State Board, and incorporated an Agricultural State Society, and has made such liberal provisions for the county societies, that it would not surprise if ere long she out-rivals New York in agricultural spirit and enterprise. No one who reads the *Ohio Cultivator*, containing reports of the agricultural board, with other manifestations to be found in that spirited paper, can fail to be impressed with the high destiny that is in store for Ohio, if she but persevere in the good work she has so nobly begun.

Maryland, too, has taken the initiative in the noble cause, and with a commendable zeal on the part of some of her distinguished agriculturists, has recently not only invoked her own Legislature, but Congress also, to do something for this too long neglected branch of the national industry. Their appeal to the State Legislature was not in vain, for that body, pending its last session, chartered the Maryland State Agricultural Society. So of Virginia, who has recently organized a State Society at Richmond. With such examples before her, and such incentives to action, is it possible that Pennsylvania will not shake off the apathy, that, like a blighting mildew, seems to paralyze her energies and her progress?

The subject of a State Agricultural Society has for a series of years been adverted to and discussed by the members of the Philadelphia Society for Promoting Agriculture as a consummation devoutly to be wished, but every effort was checked by forebodings that the Legislature would do nothing in aid of the undertaking. It is to be regretted that those fears were not wholly groundless, for on a review of the little that has been done for ag-

riculture by the representatives of farming Pennsylvania, the apprehensions that nothing would be done, cannot be considered as altogether gratuitous or imaginary. Unfortunately for the landed interest, the Legislature has so generally been absorbed in other interests, which connected themselves with the politics of the day, that it had no time to look into the condition of the patient and unobtrusive farmer, upon whose drudgery much of the pay and maintenance of the Legislature itself necessarily depend. In the congregated wisdom of the State, at Harrisburg assembled, the injunction "to unmuzzle the ox that treadeth out the corn" found no place in its councils, or on its statute book. That the importance, claims and calling of so large a body of citizens as the farmers of Pennsylvania should so long be neglected, is not only paradoxical, but discreditable.

In extenuation of this charge of neglect, it may be adduced, that there is annually, at the opening of every session, a committee on Agriculture appointed by both branches of the Legislature, but so far from this lessening the charge, it only aggravates the neglect to perform a duty of which the Assembly is every year reminded by the composition of a committee, significant that something is to be done, or should be done; for surely it could not have been intended at first, that this committee should be raised and kept standing nominally only, or in mockery to the interests it professed to subserve.

However obnoxious the Legislature may be to the charge of remissness in this important matter, it applies with tenfold force to the farmers themselves, who never, by any combined effort, attempted to place themselves in the position which, of right, they should occupy. It is conceded by the whole community, that of all the industrial classes, the farmers are the most numerous and useful—the stay and sheet anchor of the State in times of danger and difficulty. Why then have they not long since received, at the hands of their representatives, that attention they deserve, and so much require? Simply, because they have not placed themselves in the proper attitude to enforce their claims, and see that justice is done to them. If the Legislature represent all classes, and, as admitted, the farmers are the largest, then it is plain that the farmers are to blame, if their interests are neglected—the remedy is in their own hands, and it is their own fault if they do not effectually apply it.

In view of this state of affairs, as relating to the interests of agriculture in Pennsylvania, it is recommended as a first practical step towards progressive improvement, to hold a Farmers' Convention at Harrisburg, on the third Tuesday of January, 1851, to which every county is hereby invited to send delegates, for the purpose of forming a State Agricultural Society, and to take into consideration the condition of the landed interests, and to

dévisé such measures as may best promote and advance the agriculture of the Commonwealth.

JAMES GOWEN,
A. L. ELWYN,
SAMUEL C. FORD,
ALGERNON S. ROBERTS.
JOHN PRICE WETHERILL.

MAY 15, 1850.

This address was circulated throughout the State and aroused the farmers to action.

As the published reports of the Society are scarce, we deem it of importance in connection with this article that the proceedings of the convention to organize a State Agricultural Society be subjoined, as showing who the leading spirits were in establishing a Society which has contributed so much toward the advancement of Agricultural Science in this State.

PROCEEDINGS OF THE AGRICULTURAL CONVENTION, HELD AT HARRISBURG,
JANUARY 21, 1851.

At 10 o'clock, a large number of gentlemen appointed from several of the counties of the Commonwealth, to attend an Agricultural Convention, to be held at the seat of government, assembled in the upper room of the court house, when a temporary organization was effected by the appointment of General James Irvin, of Centre county, President, and E. E. Kinzer, of Dauphin, Secretary.

On motion of Gen. W. T. Rogers, the members of the Legislature from the respective counties not represented, were invited to take seats in the Convention.

The credentials of delegates were then handed in to the Secretary, and after correction and revision, at a subsequent period, it appeared that the following gentlemen had been constituted delegates to this Convention, viz:

Adams county—Nathan Geist, John B. Hoffman, Wm. M'Sherry, Isaac E. Weirman, Daniel Markley.

Allegheny—Robert C. Walker, John M'Cluskey, Col. Hiram Hultz, Dr. James Carothers, T. J. Bigham, James Fiffe, John N. Rowland, Wm. Martin, Col. Morgan Robertson, Geo. Darsie.

Armstrong—John S. Rhey.

Bedford—John Cessna.

Berks—Henry A. Muhlenberg, John C. Evans, Jacob Reifsnyder, Alex. S. Feather, Wm. D. Robeson, Samuel Fegely.

Bucks—Simon G. Gove, Jonathan Ely, Dr. Benjamin Malone, Wm. Stavelly, W. T. Rogers, James M. Wilkinson, H. Scarborough, N. Shull, Pugh

Dungan, J. Hibbs, Paul Applebaugh, D. T. Harman, John Sands, Edward Thomas.

Beaver—S. Hamilton, Archibald Robertson.

Butler—Dr. D. H. B. Brower.

Blair—Henry Reigart, John G. Schumaker, Daniel H. Royer, Christian Metz, John Brotherlin, Wm. T. Wilson, John Miller, Seth R. M'Cune, Maj. Geo. Raymond, J. C. Innis, John R. M'Farlane, G. R. M'Farland, James Barber, Joseph Higgins.

Bradford—Geo. Sanderson, Addison M'Kean, Henry Gibbs.

Chester—D. J. Bent, John S. Bowen, James M. Dorlan.

Carbon—Wm. Lilly, Jr., E. D. Cortright.

Cumberland—Geo. H. Bucher, Wm. Line, Jr., John B. Coover, Wm Adams, David Cole, John H. Weaver, Thomas Craighead, Joseph Musser, John G. Williams, Samuel Coover, Christian Titzel, Simon Oyster, Hon. Samuel Hepburn.

Centre—John Neff, Jos. Shirk, Thos. Mayes, Wm. G. Waring, Gen. James Irvin, W. H. Blair.

Clinton—William Dunn, William Packer.

Cambria—John Linton, John Crouse, Thos. A. Maguire, M. M. Adams, John C. O'Neill.

Columbia—Geo. Smith, Isaac S. Munroe, Jno. M'Reynolds, Benj. Frick.

Clarion—Reynolds Laughlin.

Clearfield—Wm. J. Hemphill.

Crawford—Thos. Van Horne, Joseph Patten.

Delaware—Jno. M. Broomall, H. Jones Brooke.

Dauphin—H. Walters, George Zinn, J. M. Haldeman, Jas. M'Cormick, Gen. S. D. Karns, Philip Dougherty, Wm. R. Griffith, Hon. John J. Pearson, J. C. Harper, John Nunninger, S. S. Rutherford, J. D. Hoffman, Isaac Bird, Peter Bordner, D. F. Hoffman, J. P. Rutherford, Daniel Reigle, Michael Bordner, John Cooper, Benjamin Buffington, Amos Hoffman, Josiah Espy, J. B. Rutherford, Sol. Landis, Thos. M'Allen, Josiah Jones, Samuel Grey, J. J. Millisen, Wm. Allen, Jacob Landis, Michael Horner, Col. Jos. Hummel, Wm. Gilmore, Robert Stewart, David Mumma, Jr., Hon. A. O. Heister, Dr. Luther Reily, John C. M'Allister, John H. Fox, C. E. Heister, Wm. Colder, Sr., Hon. Matthew B. Cowden, C. Caslow, John Wallower, Wm. K. Espy, Henry Herr, Aaron Bombaugh, Isaac G. M'Kinley, Simon Cameron, Wm. J. Robeson, Daniel Puffenberger, George Urban, John P. Leibrich, C. Lyter, Christian Ehrman, Wm. Reed, J. R. M'Connel, Wm. B. Murray, Maj. John Shell, E. E. Kinzer.

Erie—John H. Walker, James C. Reid, A. W. Blaine, G. J. Ball.

Elk—Jas. L. Gillis.

Fayette—Dr. John Patrick, Jas. P. Downer, Jos. Griffin.

Franklin—John M'Lean, David M'Clay, Judge Kennedy, Wm. Keyser, Jacob Keyser, Wm. L. Chambers, M. Newcomber, Wm. M'Dowell, John Bradley, James Lowe.

Greene—Lewis Roberts.

Huntingdon—Robert Spear, Wm. B. Smith, Jno. B. Stewart.

Indiana—Wm. Evans.

Jefferson—Levi G. Clover, John Hastings, Thomas M'Kee.

Junata—Samuel O. Evans, Stewart Turbitt, Silas E. Smith, Wm. G. Thompson, Dr. John Irwin, Hon. John Beal, Jno. M. Pomroy, Gen. Wm. Bell, E. P. Thompson, Robert M'Allister, Hugh Hamilton, Alex. Patterson.

Lancaster—Hon. Alexander L. Hayes, Jacob B. Garber, Abram Kauffman, Christ. H. Lefevre, Jas. G. Henderson, Geo. Morrison, Benj. Eshelman, John Miller, A. M. Spangler, D. W. Patterson, Wm. B. Jacobs, Christ. Herr, O. J. Dickey, Daniel Rhoads, J. F. Herr, John Kirk, Thos. H. Burrowes, John N. Russel, Jacob Frantz, Jacob Myers, Geo. Lefevre, Christ. J. Heistand, John Bossler, Ely Parry, Geo. M. Steinman, John Shaeffer.

Lawrence—Thomas Dungan.

Lebanon—Daniel Stine, Jos. Rinehard, John Shindle, Geo. F. Miller, John Harper, John Kreitzer, Christian Rambler, Henry Seigrist, Michael Deiminger, J. M. Killinger.

Lehigh—David Laury.

Luzerne—Hon. Geo. W. Woodward, James W. Rhoads, S. S. Benedict, Josiah P. Beach, James S. Campbell, ——— Saylor.

Lycoming—Wm. Brindle, Wm. F. Packer, Jacob W. Pfouts, Geo. Crane, Hepburn M'Clure, J. H. Fulmer.

Mercer—John Hoge, Wm. S. Garvin, James Hasleton, Morris Leech.

Mifflin—J. J. Cunningham, John Ross, James Burns, Ephraim Banks, General R. C. Hale, Geo. Davis, Jos. H. Alexander, Geo. M'Culloch, Thos. M'Clure, William Wilson, T. W. Moore.

Monroe—John Smith, John D. Morris.

Montgomery—John Kennedy, Daniel C. Getty, Thos. P. Knox, Jacob Highly, Isaac Markley, Charles Wampole, Wm. A. Styer, Wm. Henry, C. W. Gabe, O. P. Fretz,

Northampton—General C. Shimer, Jos. Brown, Alexander E. Brown.

Northumberland—C. Gale, Thos. Watts, Wm. Cook, J. B. Packer, C. H. Kay, J. A. Frick, Geo. Broshius, J. R. Priestly, Gen. Wm. H. Kase, John P. Baird.

Philadelphia city and county—A. L. Elwyn, A. S. Roberts, Manuel Eyer, James Gowen, Samuel C. Ford, J. R. Ingersoll, A. T. Newbold, Isaac Pearson, Judge W. D. Kelley, Judge Todd, C. B. Trego, Peter A. Browne, Geo. H. Hart, Charles O'Neil, Jacob L. Gossler, Edward Armstrong, L. C. Cassidy, Wm. Goodwin, W. J. Jackson, S. Skinner, A. Penniman, A. W.

Olwine, S. Demers, Wm. H. Souder, R. Simpson, Andrew Hague, H. Huplet, J. C. Cresson.

Perry—Alexander B. Anderson, David Steward, John Reifsnnyder, F. Rinehard, John Huggins, George Blattenberger, Finlaw M'Cowan, Joseph Baily.

Potter—Judge T. Ives.

Somerset—George Mowry, S. W. Pierson.

Schuylkill—David Greenhalt, C. Frailey, W. J. Dobbins, J. S. Struthers.

Union—Eli Slifer, H. W. Snyder.

Venango—Arnold Plumer.

Washington—G. V. Lawrence, Isaac Leet, David Riddle, Jonathan D. Leet, Wm. S. Mellinger.

Warren—J. Y. James, S. J. Goodrich.

Wayne—Calvely Freeman.

Wyoming—E. Mowry.

York—Jacob S. Haldeman, E. C. Trone, Alexander C. M'Curdy, Joseph Wickersham, Adam Ebaugh, James M. Anderson, Henry Logan, John Evans, Jacob G. Miller, Thomas P. Potts, Wilson Grove, Hugh Wiley, Jacob Cockline, Dr. G. L. Shearer, Henry Fulton, John R. Donnel, Walter Beatty.

On motion of Judge Todd, the delegates from the respective Congressional districts were authorized to appoint one member from each district to constitute a committee to select permanent officers for the convention; whereupon, the following committee was appointed for this purpose:

- | | |
|-----------------------|------------------------|
| 1. Dr. A. L. Ellwyn, | 13. H. W. Snyder, |
| 2. A. S. Roberts, | 14. J. P. Rutherford, |
| 3. Manuel Eyre, | 15. Joseph Wickersham, |
| 4. S. C. Ford, | 16. George H. Bucher, |
| 5. Daniel C. Getty, | 17. Hon. John Beall, |
| 6. Simon G. Gove, | 18. Dr. John Patrick, |
| 7. John S. Bowen, | 19. Dr. L. L. Bigelow, |
| 8. Hon. A. L. Hayes, | 20. David Riddle, |
| 9. H. A. Muhlenberg, | 21. John B. Rowland, |
| 10. Joseph Brown, | 22. Morris Leech, |
| 11. James W. Rhodes, | 23. Gideon J. Ball, |
| 12. George Sanderson, | 24. William Evans. |

On motion, it was ordered, that when this convention adjourns, it adjourn to meet in the hall of the House of Representatives, at half-past two o'clock this afternoon.

The convention then took a recess of half an hour, to enable the committee to report officers.

The convention again met, when Judge Hayes, from the committee to report officers made report, that they had selected the following gentlemen as the permanent officers of the constitution, which report was adopted.

President.

HON. GEORGE W. WOODWARD.

Vice Presidents.

Gen. James Irvin.

First	Congressional District	Dr. A. L. Ellwyn.
Second	do	A. S. Roberts.
Third	do	James Gowen.
Fourth	do	Hon. W. D. Kelly.
Fifth	do	Isaac Markley.
Sixth	do	William Stavely.
Seventh	do	H. Jones Brooke.
Eighth	do	Abraham Kauffman.
Ninth	do	H. A. Muhlenberg.
Tenth	do	Gen. Conrad Shimer.
Eleventh	do	James Campbell.
Twelfth	do	Addison M'Kean.
Thirteenth	do	John W. Maynard.
Fourteenth	do	A. O. Heister.
Fifteenth	do	Jacob S. Haldeman.
Sixteenth	do	John Bradley.
Seventeenth	do	Stewart Turbet.
Eighteenth	do	Maxwell M'Caslin.
Nineteenth	do	Dr. L. L. Bigelow.
Twentieth	do	Geo. V. Lawrence.
Twenty-first	do	Col. Hiram Hultz.
Twenty-second	do	Arnold Plumer.
Twenty-third	do	Gideon J. Ball.
Twenty-fourth	do	John S. Rhey.

Secretaries.—Robert C. Walker, Samuel C. Ford, Reuben C. Hale, Isaac G. M'Kinley, William G. Waring.

On motion, Joseph R. Ingersoll, Dr. A. L. Ellwyn, Alex. Patterson, W. Stavely and Geo. V. Lawrence were appointed a committee to prepare business for the consideration of the convention.

The convention then adjourned to meet at the Capitol at 2½ o'clock, P. M.

HALL OF THE HOUSE OF REPRESENTATIVES, }
Tuesday, January 21, 1851.

The convention met in pursuance of the adjournment of the preliminary meeting, in the Hall of the House of Representatives, when Judge Wood-

ward, the permanent President, and the Vice Presidents and Secretaries, took their seats.

On motion, Gideon J. Ball, A. O. Heister and Gen. W. T. Rogers, were appointed to invite the Governor and Heads of Departments, to take seats in the convention.

On motion of Mr. Malone, it was

Resolved, That the resolution of the preliminary meeting, be so extended as to invite all the members of the Senate and House of Representatives to take seats in the convention.

On motion of H. Jones Brooke, it was

Resolved, That all gentlemen in Harrisburg, from the different counties of the Commonwealth, who may desire to participate in the proceedings of this convention, shall have the privilege of doing so by handing in their names to the Secretary.

Mr. Ingersoll, from the committee to prepare business, reported the following propositions, which were severally adopted :

1. That it is expedient to establish a Pennsylvania State Agricultural Society.

2. That a committee be appointed to report a draught of a constitution for the society.

3. That a committee of three members be appointed for the purpose of preparing a memorial to the Legislature, asking for a charter, and for an appropriation, for the purposes of the society.

4. That in the opinion of this convention, it is expedient that instruction in agriculture be introduced into the system of education in the public schools of the Commonwealth.

5. That a committee of one member from each Congressional district be appointed to report the names of persons to act as officers of the society until an election shall take place according to the constitution.

The chair appointed the following committee in pursuance of the second proposition, viz: Dr. Ellwyn, Judge A. L. Hayes and Hiram Hultz,

The chair appointed the following committee under the fifth proposition :

First.....	Congressional district.....	Dr. A. L. Ellwyn.
Second.....	do.....	A. S. Roberts.
Third.....	do.....	Manuel Eyre.
Fourth.....	do.....	S. C. Ford.
Fifth.....	do.....	Daniel C. Getty.
Sixth.....	do.....	Simon G. Gove.
Seventh.....	do.....	John S. Bowen.
Eighth.....	do.....	Hon. Alex. L. Hayes.
Ninth.....	do.....	H. A. Muhlenberg.
Tenth.....	do.....	Joseph Brown.

Eleventh	Congressional district	James W. Rhodes.
Twelfth	do	George Sanderson.
Thirteenth	do	H. W. Snyder.
Fourteenth	do	J. P. Rutherford.
Fifteenth	do	Jos. Wickersham.
Sixteenth	do	Geo. H. Bucher.
Seventeenth	do	Hon. John Beall.
Eighteenth	do	Dr. John Patrick.
Nineteenth	do	Dr. L. L. Bigelow.
Twentieth	do	David Riddle.
Twenty-first	do	John V. Rowland.
Twenty-second	do	Morris Leech.
Twenty-third	do	Gideon J. Ball.
Twenty-fourth	do	Wm. Evans.

Upon invitation, Judge Kelly addressed the convention briefly upon the subject of agriculture.

Peter A. Browne delivered an address on the subject of Hair and Wool, giving an interesting account of the experiments and investigations made by himself upon this subject.

Mr. Gowen was then called upon and addressed the convention upon the subject of the Improvement of Soils.

The committee appointed to invite the Governor and Heads of Departments, at this stage of the proceedings introduced those officers, who were assigned seats upon the floor of the convention.

Judge Hayes, from the committee to prepare and report a Constitution for the State Society, made the following report :

CONSTITUTION OF THE PENNSYLVANIA STATE AGRICULTURAL SOCIETY.

The name of the society shall be the "Pennsylvania State Agricultural Society." The objects of this society are to foster and improve agriculture, horticulture and the domestic and household arts.

SECTION 1. The society shall consist of all such persons as shall signify to the executive committee their wish to become members, and shall pay to the treasurer, on signing the constitution of the society, not less than one dollar; and annually thereafter, not less than one dollar; and also of honorary and corresponding members.

The officers of county agricultural societies in this State, or delegations therefrom, shall be members *ex-officio* of this society.

The payment of twenty dollars shall constitute life membership, and exempt the members so contributing from all annual payments.

SECTION 2. The officers of the society shall be a president, a vice president from each congressional district, three-fourths of whom shall be practical agriculturists or horticulturists, a treasurer, a corresponding secretary, a recording secretary, a librarian, an agricultural chemist and geologist, and such assistants as the society may find essential to the transaction of its business; an executive committee consisting of the above named officers, and five additional members.

DUTIES OF THE OFFICERS.

SECTION 3. The President shall have a general superintendence of all the affairs of the society. In case of the death, illness or inability of the President to perform the duties of his office, the Executive committee shall select a vice president to act in his stead, who shall have the same power and perform the same duties as the president, until the next annual election.

VICE PRESIDENTS.

It shall be their duty to take charge of the affairs of the association in their several districts, to advance all its objects, to call upon farmers to report as to the condition of agriculture in their neighborhood, to ask for information as to the modes of cultivation adopted by different farmers, and as far as in their power to make known the resources of their districts, the nature of its soil, its geological character, and all such matter as may interest farmers in every part of the State.

TREASURER.

The treasurer shall keep an account for all moneys paid into his hands, and shall only pay bills when audited and approved by the executive committee; each order for payment must be signed by the president or chairman of the executive committee.

CORRESPONDING SECRETARY.

The duty of this officer shall be to invite a correspondence with all persons interested in agriculture, whether in the State of Pennsylvania or elsewhere, but especially with our consuls in foreign countries, that new seeds, vegetables, or live stock may be introduced, and their fitness for cultivation and propagation in our climate be tested. At each stated meeting of the society he shall read his correspondence, which shall, either the whole or such parts as may be selected by the society, form a portion of the transactions.

He shall also correspond with the president or other officer of each State Society in the United States, at least twice in the year, for purposes of combined and mutual action, and to be informed of the result and progress of each others efforts; also, to invite mechanics to forward models or implements for examination and trial.

The recording secretary shall keep the minutes of the society and of the executive committee; at the close of each year he shall prepare for publication such parts of the minutes and transactions of the society as may be designated.

The librarian shall take charge of all books, pamphlets, &c., belonging to the society, and shall act as curator to preserve seeds, implements, or whatever property the society may possess.

The executive committee shall transact the business of the society, generally; shall superintend and direct the publication of such of the reports and transactions as they may deem proper, and shall designate the time and places for annual exhibitions, regulate the expenditures, examine all accounts, and keep such general charge of the affairs of the society as may best promote its interests.

They shall select their own chairman, and meet monthly; five members shall form a quorum.

They shall call special meetings of the society when necessary.

SECTION 4. The society shall meet annually, on the third Tuesday of January at Harrisburg, when all the officers of the society shall be elected by ballot for the ensuing year, and until another election. They shall also hold a general meeting at the time of the annual exhibition, and special meetings whenever convoked by the executive committee.

Fifteen members shall form a quorum for the transaction of business, but no member in arrears shall be entitled to the privileges of the society.

SECTION 5. This constitution may be altered or amended, at the annual meetings in January, by a vote of two-thirds of the members in attendance.

The constitution was then considered by sections, and the several divisions adopted.

John C. Cresson, of Philadelphia, moved the following additional article to the constitution:

An advisory committee or council, to be composed of five members in each county of the State, to be annually appointed at the stated meeting of the State society, in January. The president of the agricultural societies in each county, where such exists, to be *ex-officio* chairman of the county advisory committee.

Mr. Roberts moved to lay this additional article on the table, which motion was agreed to.

On motion of Dr. Patrick, it was

Resolved, That when this convention adjourns, it will adjourn to meet at 7½ o'clock this evening.

On motion, the convention then adjourned.

EVENING SESSION.

The convention assembled, in pursuance of adjournment, at 7½ o'clock.

The chair announced that he had appointed Jos. R. Ingersoll, of Philadelphia; A. O. Hiester, of Dauphin, and Mr. M'Allister, of Juniata, the committee to memorialize the Legislature in favor of a charter for the agricultural society, and an appropriation for the advancement of agriculture.

The President laid before the convention a letter from Dr. W. D. Brinckle, of Philadelphia, which was read and laid on the table.

On motion of Ephraim Banks, Dr. Brinckle's letter was ordered to be entered on the minutes of the convention, and the president was authorized to request the Doctor to prepare and submit to the next meeting of the society, a treatise on entymology.

DR. BRINCKLE'S LETTER.

PHILADELPHIA, *January 18, 1851.*

MY DEAR SIR:—Your kind and esteemed favor of the 15th inst. was received yesterday.

It would afford me much pleasure to attend the agricultural convention about to assemble at Harrisburg, but I regret to say that my professional and other engagements will not allow me the gratification of meeting with you. I trust, however, and firmly believe that the convention will exert an influence highly beneficial to the agricultural interests of our State.

Pennsylvania, in an agricultural and horticultural point of view, does not occupy the high position which she is so eminently capable of attaining. Though no agriculturist myself, I have, for sometime past, been desirous of seeing established in our Commonwealth, a State agricultural society, or a State Board of Agriculture, and also an agricultural school under the fostering care of our Legislature. These are measures for which we are told our farmers are not yet prepared. Then why not make an effort to prepare them, by urging our Legislature to appoint a committee merely of inquiry on these and collateral subjects, such as the insects injurious to vegetation in Pennsylvania—the introduction of agricultural books into our several public schools, &c. This committee would be able to submit a report containing such a mass of interesting and valuable information, that the desired impetus would be given to the science of agriculture, and its onward progress would encounter no obstacles that would not readily be surmounted.

In regard to entymology—what an interesting—what an important subject to the farmer! Some of these insects are his friends, a still larger number are his worst enemies. Does he know which are beneficial and which are destructive? He has probably seen, within a few years, the tender succulent terminal branches of some of his apple trees covered with a small green fly—the aphid or plant louse—to the injury of both tree and fruit. Perhaps he is not aware that a small coleopterous insect often seen

by him, and called in common parlance lady-bird or lady-bug, lives on these aphides. This beneficial insect, at the proper time, deposits her eggs usually on the under side of a leaf, and in a week or two, from each egg emerges a small black worm, the larva of the lady-bird. Does he know that this worm when placed on a plant infested with aphides, will exterminate them in an incredibly short period? And yet have I seen the farmer kill this valuable little friend, believing it to be a noxious insect. How often is the term *innocent* applied to the butterfly and moth! And yet in their larval condition their destruction to crops is immense. If any evidence be required, let a full-grown worm be taken from an apple or pear and placed in a vial with a glass stopper; the worm soon weaves a cocoon and then becomes metamorphosed into a chrysalis. In this dormant state it exists without food, till after the lapse of a few weeks or months, the allotted period for another transformation takes place, the thin shell of the chrysalis bursts and out comes the little *innocent* candle moth, in a state of being prepared for the propagation of its kind. What are the ruthless and devastating caterpillars, but innocent moths and butterflies in another form of existence? The agriculturist has witnessed with dismay the desolating ravages of the Hessian fly. But has he ever seen this fly in its perfect insect state? If he has, he would scarcely recognize it as the worm that blasted his wheat harvest. The horticulturist laments that his plum trees of choice varieties yield no fruit; the failure is, perhaps, justly attributed to the curculio. In all probability, however, he has never seen a curculio in its perfect insect state. Yet he can do so, by confining in a vial, a worm from a plum, nectarine or cherry, and after passing through several metamorphoses, the curculio will appear in the form of a little brown, hump-backed beetle, with a long proboscis, with which it makes the peculiar crescent-shaped incision, so often seen on the plum in which its egg is deposited.

The farmer knows, from sad experience, that his crops are often partially, sometimes almost wholly destroyed by the ravages of insects. But perhaps he does not know that every crop he cultivates, every plant, every shrub, every tree that grows, without a solitary exception, has a natural, inveterate and voracious enemy in one or more of the insect tribe. These insects he cannot expect to combat successfully, without previously knowing their appearance, character, habits, &c., not only in their perfect insect form, but also in their larval and more formidable state of existence. * * *

Your obedient servant,

W. D. BRINCKLE.

HON. GEORGE W. WOODWARD.

Able and eloquent address were delivered by Maj. Neff, of Centre, David Mumma, Jr., of Dauphin, Hon. Jos. R. Ingersoll, Peter A. Browne, Judge

Todd, Judge Kelley, James Gowen, Esq., of Philadelphia, and Judge Woodward, in favor of the adoption of the constitution.

The constitution was unanimously adopted.

On motion of Mr. Ingersoll, it was

Resolved, That this convention respectfully invite the Legislature to take into its early and favorable consideration the publication of Professor Rogers' Geological report, and the arrangement of the mineral cabinet.

On motion of Judge Kelley, it was

Resolved, That when this convention adjourns it adjourns to meet to-morrow afternoon at half-past two o'clock.

Adjourned

HALL OF THE HOUSE OF REPRESENTATIVES, }
Wednesday, January 22, 1851. }

The convention met at half-past two o'clock.

Mr. M'Sherry offered the following resolution, which was adopted :

Resolved, That any person who desires to become a member hereafter may do so by forwarding to the secretary of the society the initiation fee of one dollar, and the secretary, on the reception of said fee, shall sign the name of said person to the constitution.

On motion of Mr. Hultz, the Executive committee were directed to prepare and report by-laws, to be submitted to the meeting of the society.

Mr. Kennedy submitted the following resolution, which was disagreed to :

Resolved, That the constitution be amended as follows : "That each county that forms a society for the improvement of agriculture, may become auxiliary to the State Society by paying ——— dollars to the State Society, and without that quota being paid by said county, that it shall have no share in the premiums paid out by said State Society.

Mr. Eyer submitted the following resolution, which was disagreed to :

Resolved, That the executive committee be authorized to fill any vacancy that may occur in the officers of this society prior to the next annual meeting.

The committee for the appointment of officers made report that they had selected the following gentlemen as officers of the society :

President—Frederick Watts, Cumberland.

Vice Presidents—Geo. W. Woodward, *Honorary Vice President*.

First..... Congressional District..... Peleg B. Savery.

Second..... do..... Joseph R. Ingersoll.

Third..... do..... Caleb Cope.

Fourth..... do..... James Gowen.

Fifth..... do..... John Kennedy.

Sixth..... do..... William Stavely.

Seventh.....	Congressional district.....	Ab'm R. M'Ilwain.
Eighth.....	do.....	J. B. Gerber.
Ninth.....	do.....	Col. Henry Shubert.
Tenth.....	do.....	Conrad Shimer.
Eleventh.....	do.....	Jacob Drumheller.
Twelfth.....	do.....	Hon. Wm. Jessup.
Thirteenth.....	do.....	Jacob Gundy.
Fourteenth.....	do.....	A. O. Heister.
Fifteenth.....	do.....	J. S. Haldeman.
Sixteenth.....	do.....	Finlaw M'Cown.
Seventeenth.....	do.....	Jon. M'Williams.
Eighteenth.....	do.....	Henry W. Beeson.
Nineteenth.....	do.....	Wm. A. Stokes.
Twentieth.....	do.....	Wm. Patterson.
Twenty-first.....	do.....	Hiram Hultz.
Twenty-second.....	do.....	Morris Leech.
Twenty-third.....	do.....	James Miles.
Twenty-fourth.....	do.....	David Ralston.

Corresponding Secretary—Dr. Alfred L. Ellwyn, Philadelphia.

Recording Secretary—Robert C. Walker, Allegheny.

Treasurer—Geo. H. Bucher.

Librarian—Dr. Luther Reily.

Analytical Chemist and Geologist—Charles B. Trego.

An executive committee to consist of the above named officers and five additional members, to wit: Algernon S. Roberts, Philadelphia county; John Evans, York; Dr. John Irwin, Juniata; Isaac G. M'Kinley, David Mumma, Jr., Harrisburg, was appointed.

On motion of Mr. Eyer, Hon. George W. Woodward, President of this Convention, was elected Honorary Vice President of the Agricultural Society.

The report of the committee to select officers for the society, with this amendment, was then adopted.

Mr. Ingersoll, from the committee upon that subject, reported the follow-memorial to the Legislature, which was adopted, and it was ordered that it be signed by the officers of the convention, and presented to the Legislature:

The Memorial of a Convention held at Harrisburg on the Twenty-first and Twenty-second days of January, 1851, respectfully represents:

That a large number of citizens of the Commonwealth, having come together at the seat of the State Government, formed themselves into a convention, for the purpose of better deliberation. They represented every section of the State. Their objects were patriotic, and their views were

altogether free from selfish influences. Devoted to the best interests of the great Commonwealth to which they have the happiness to belong, and anxiously desirous to promote them, they adopted the outline of a plan for the encouragement and advancement of agriculture in Pennsylvania. As a practical art and useful science, it is peculiarly adapted to the condition and habits of the people, and is identified with the prosperity of the State. It is susceptible of being brought home to the pursuits of the great majority of the people, and of contributing to the advantages of all.

While, as individuals, your memorialists are ready to make every exertion for the attainment of the great object which brought them together, they are too well satisfied that their efforts must be fruitless, and their hopes, however ardent, must end in disappointment, unless they could receive the official countenance of your honorable bodies. Your memorialists knowing that for all good purposes there is strength in union, have cordially united themselves together. They are animated with a belief that the spirit which has led to the undertaking, and which cherishes a trust in the accomplishment of it, will not fail; but that it will continue to inspire them until the scheme, which they feel to be praiseworthy, shall be crowned with success. Yet they know that the extensive and public undertaking which they represent, must be founded on public support.

Your memorialists respectfully appeal to the Legislature of the Commonwealth as the immediate representatives of the people of the Commonwealth, for that support. Without it, they would be constrained to abandon their design. With it, the design cannot fail to prosper.

A constitution has been framed, chiefly upon the model of the constitution of similar societies already established in sister States. The results which have been reached elsewhere, are convincing proofs of the propriety of the individual effort, and of the wisdom and sound policy of legislative encouragement. State agricultural societies are prosperous and beneficial wherever they have been formed. It is believed that no interruption has been found in their career. It is certain that they have given birth to improvements in many departments of agricultural science, and practical utility, equal to the most anxious hopes of their founders. It is no less certain that the sagacious policy of the legislative bodies, which have spread over them the mantle of the law, has been recompensed by an increase of prosperity and an expansion of the various elements of greatness and wealth, which are the just aims of sovereign States. In giving encouragement to agricultural societies, our sister Commonwealths did but imitate wise examples set by other countries. Our own great Commonwealth cannot err in profiting by the light of such wide-spread and unfailing experience.

The constitution framed by this convention is respectfully submitted as a basis for legislative action. It will be acceptable in such form and with

such details as your honorable bodies shall consider worthy of being introduced. The convention, knowing the necessity of a charter for the effectual existence of the society, respectfully prays for an enactment in the shape that the Legislature in its better judgment may approve.

As an incident to legislative protection, pecuniary assistance is respectfully asked. Individual funds will be contributed, it is hoped, not reluctantly or in small measure. If the effort shall succeed, other sources of contribution through the medium of the operations of the society will be found. Its energies, however, must be crippled, and its existence would be brief, if the Commonwealth did not lend available assistance by the appropriation of money. The resources of our State, as yet but imperfectly developed, will, it is confidently hoped, receive from this undertaking an impulse that will not be arrested in the course of ages. The soil is prolific, in great variety, and endless extent of wealth. Of dimensions, scarcely less than any of the older members of the Union; in population, second only to one; in situation central, and surrounded by prosperous sovereignties, generously emulous of each others prosperity, combined efforts of individual enterprise and legislative wisdom and liberality alone are wanting to give to Pennsylvania the dignified and commanding position designed for her by nature, and pointed out by the unerring finger of Providence.

Your memorialists respectfully pray that a charter of incorporation may be granted to the "Pennsylvania State Agricultural Society," by legislative enactment, and that such appropriation may be made for its relief and assistance, as to your honorable bodies may seem just.

And your memorialists will ever pray, &c.,

GEO. W. WOODWARD,

President of Agricultural Convention.

HARRISBURG, *January 23, 1851.*

James Irvin, Wm. Stavely, Alfred L. Ellwyn, J. S. Haldeman, Hiram Hultz, James Gowen, Wm. D. Kelly, Ab'm Kauffman, Adam Ebaugh, A. O. Heister, John Bradley, Stewart Turbet, Morris Leech, A. Plummer, H. Jones Brooke, James Campbell, John S. Rhey, L. L. Bigelow, Addison M'Kean, M. M'Caslin, Conrad Shimer, G. V. Lawrence, Henry A. Muhlenberg, G. J. Ball, *Vice Presidents.*

Isaac G. M'Kinley, R. C. Hale, Robert C. Walker, W. G. Warning, *Secretaries.*

Mr. Ingersoll, submitted the following resolution, which was adopted.

Resolved, That the thanks of this convention are hereby tendered to the the members of the House of Representatives, for the permission to use their hall; and to the members of the Legislature generally, for their kind attention to the objects of the convention.

On motion of Judge Kelley, it was ordered, that when this convention adjourns, it adjourn to meet this evening at half-past seven o'clock.

Adjourned.

EVENING SESSION.

Judge Hayes submitted the following resolutions, which were adopted :

Resolved, That it is the opinion of this convention, that it is important to a large agricultural interest of this Commonwealth to exhibit at the World's Fair to be held in London, specimens of the wool grown in this country ; and that it be recommended to our Senators and Representatives in Congress to obtain an appropriation of a competent sum, from a fund in the Patent Office of the United States, to defray the expenses of an agent, who shall take with him prepared and select specimens of such wool, to be exhibited at the said fair, for the premium to be awarded to productions of the highest excellence.

Resolved, That the secretary of the convention transmit to each of the Senators and Representatives in Congress from this State, a copy of the above resolution.

Mr. Haldeman submitted the following resolution, which was adopted :

Resolved, That the recording secretary of the society be, and is hereby authorized to cause the publication of the proceedings of the convention, and constitution and the address as prepared for submission to the Legislature in pamphlet form, and to furnish five copies to each member of the society, and to each member of the Legislature.

Mr. Heiser submitted the following resolution, which was adopted :

Resolved, That it be recommended to the various counties of the Commonwealth, the establishment of county agricultural societies auxiliary to the State society.

Resolved, That it be recommended to the different county societies to keep a book of general registry, in which shall be registered all agricultural statistics, the pedigrees of the various kinds of stocks, as well as all important information connected with the raising of stock, and the improvement of agriculture in general, and make report of the same to the vice president of the district in which said societies are located, that the same may be reported to the State Agricultural Society.

Mr. Brotherlin submitted the following resolution, and put the question upon it himself, which was unanimously adopted :

Resolved, That the thanks of this convention are hereby tendered to the president, vice presidents and secretaries, for the faithful and impartial discharge of their duties.

Mr. Eyer submitted the following resolution, which was adopted :

Resolved, That a committee of three be appointed to revise the minutes of this convention before forwarding them to the recording secretary.

Whereupon Messrs. Eyer, Haldeman and M'Kinley were appointed said committee.

The president then returned thanks for the complimentary resolution adopted, and referred in a brief manner, to the good results likely to flow from the deliberations of this body.

The convention then adjourned *sine die*.

Immediately after the successful fair held by the State Society at Harrisburg, in October, 1851, the subject of county organizations was discussed in the several counties of the Commonwealth. Within the succeeding two years, societies were organized and fairs held in Allegheny, Beaver, Bucks, Bedford, Bradford, Chester and Delaware, Centre, Dauphin, Franklin, Fayette, Juniata, Lancaster, Lawrence, Mercer, Northampton, Northumberland, Susquehanna, Tioga, Union, Wayne, Westmoreland, Warren and York. The remaining counties caught the spirit and for the next seven years nearly every county in the State had an organization which was recognized by the State Society.

The subject of agricultural schools was also discussed, which finally resulted in the passage of an act, which was approved the 13th day of April, A. D., 1854, to "Incorporate the Farmers' High School of Pennsylvania." Several years elapsed before this school was located and in successful operation. It was finally located in Centre county, about twelve miles southwest of Bellefonte, in the township of Harris. It has undergone several changes in name, until it is now known as the Pennsylvania State College. The formation of county societies and the establishment of the Farmers' High School were great auxiliaries to the State organization and did much to stimulate the farmer, horticulturist and mechanic in their several vocations. We see that in 1860, nine years after the State Society was founded, that there were ten million four hundred and sixty-three thousand two hundred and ninety-six acres of land under cultivation ; being a fraction over one-third of the area of the State, and an increase of one million eight hundred and thirty-four thousand six hundred and seventy-seven acres of cultivated land in the short space of ten years. This showed that the farmers of Pennsylvania, acting under some impetus or stimulus, had cleared up and brought under cultivation, at the rate of one hundred and eighty thousand acres annually ; thus demonstrating the usefulness of the

county and State organizations, and the necessity of awakening the tiller of the soil, the mechanic and artisan to a sense of their own welfare.

The cash value of cultivated lands in Pennsylvania in 1860

was.....	\$662,050,707
Unimproved lands used for farming purposes or connected with farms was.....	6,548,844

There was produced—

Bushels of wheat.....	13,042,165
Bushels of rye.....	5,474,788
Bushels of corn.....	28,196,821
Bushels of oats.....	27,387,147
Bushels of barley.....	530,714
Bushels of buckwheat.....	5,572,024
Tons of hay.....	2,245,413
Pounds of butter.....	58,653,511
Pounds of cheese.....	2,508,556
Pounds of wool.....	4,752,522

The value of animals slaughtered was \$13,399,375, being an excess in value of those slaughtered in 1850, of over five million dollars.

The value of farming implements was \$22,442,842, a gain of seven millions since 1850.

The number of horses employed upon the farms in the State

were.....	437,654
Otherwise employed.....	66,180
Total.....	503,834

It is safe to estimate that the value of each horse at one hundred dollars per head, this would show that the farmers of the State had invested nearly fifty million dollars in farm horses.

The State was divided into one hundred and fifty-six thousand farms.

There were upon those farms—

Mules.....	8,832
Working oxen.....	60,371
Milch cows.....	673,547
Other cattle.....	685,575
Sheep.....	1,631,540
Swine.....	1,031,266

The population of the State in 1860 was.....	2,906,215
1850.....	2,311,786
<hr/>	
Increase in ten years of.....	594,429

The rebellion which began in 1861 made a severe drain upon the several industries of the State. Pennsylvania furnished during the war two hundred and ten regiments which served from three months up to three years. There were also sixty regiments of emergency militia and a large number of independent companies formed.

The taking of nearly four hundred thousand men from the active pursuits of life created a large demand for laborers of all kinds and descriptions. The agricultural portion of the community sent forth a very large quota of these, not less than one hundred thousand.

Farm laborers became scarce and even the owners of some of the finest farms in the State left their fair possessions in charge of an agent, (that agent frequently being the wife,) buckled on their armor and marched to the front.

The products of the farm, the work shop and every other industry rapidly advanced in rates until they reached a fabulous price. The cost of living kept pace with these advances.

The emigration to this country during the war entered into most every other vocation more largely than it did in agriculture. Hundreds of miners from England, Scotland and Wales, came to Pennsylvania, and supplied the places of those who had entered the army from the mining districts, while very few assisted in the productions of the farm. The farmers in many instances were compelled to pay three and a half and four dollars per day for men in haying and harvest, and from thirty-five to forty-five dollars per month for farm hands by the year. The army was disbanded in the summer of 1865, and the soldiers returned to their several vocations. The high prices paid in all departments of industry has since gradually receded.

The recuperative power of the American people is proverbial. The increase of cultivated lands from 1860 to 1870 were one million fifty-two thousand six hundred and sixty-nine, being at the rate of a little over one hundred and five thousand acres annually. This may be regarded as a first class showing when all things are considered. The increase of population for the same period (from 1860 to 1870) was six hundred and fifteen thousand seven hundred and thirty-six, making the entire population of the State to consist of three million five hundred and twenty-one thousand nine hundred and fifty-one.

The cash value of farms was \$1,043,481,582.

Total estimates of farm productions for the year 1869, were \$183,946,027, and the value of farming implements in use for the year 1870, was \$35,-658,196

We have selected some of the leading products of the farm in the following table :

Tons of hay..... produced in 1869.....	2,848,219
Pounds of cheese..... do.....	1,045,209
Pounds of butter..... do.....	60,834,644
Bushels of potatoes, (Irish,)..... do.....	12,889,367
Bushels of beans..... do.....	39,574
Pounds of wool..... do.....	6,561,722
Pounds of tobacco..... do.....	3,467,539
Bushels of buckwheat..... do.....	2,532,173
Bushels of barley..... do.....	529,562
Bushels of oats..... do.....	36,478,585
Bushels of corn..... do.....	34,702,006
Bushels of rye..... do.....	3,577,641
Bushels of spring wheat..... do.....	322,328
Bushels of winter wheat..... do.....	19,350,639
Value in dollars of live stock.....	115,647,075
Value of animals slaughtered.....	23,412,903
Value of home manufacture.....	1,503,754
Products of market gardens.....	1,810,016
Products of orchards.....	4,208,094
Product of the forest.....	2,670,370

Several of these items, we believe, are estimated entirely too low. The item of forest production is certainly underestimated. However, when we add the value of the products of the mines and all the various industries of the State to the above selected table, the resources and productions of Pennsylvania are simply immense; indeed, no table of figures can adequately present to the reader the magnitude of her agricultural, mining and industrial interests. They must be witnessed to be appreciated and comprehended. No State in the great sisterhood which comprises the Union, contains within her limits so many varied industrial interests as Pennsylvania. The broad fields of highly cultivated lands show that the subject of agriculture is receiving the directing care of the learned and skilled talent of the State.

The great number of Farmers' Granges which have so recently been organized, show that the sturdy farmers, as they have hitherto been called, are aroused to the dignity and importance of their vocation. The Pennsylva-

nia State Agricultural College, now in successful operation, situated in the geographical centre of the State, is sending forth her sons, rich in agricultural acquirements, to disseminate the results of their researches and experiments in all parts of the Commonwealth and adjacent States, thereby stimulating the farmer and sons of farmers, to devote more time and more thought to this ennobling pursuit. The common school system of the State is our pride and boast; but the time is not far distant, when polytechnic schools will be engrafted upon it, thereby affording our children an opportunity not only of acquiring a scholastic and scientific education; but a mechanical, artistical and professional one. In justice to our great industrial interest, such schools should be instituted by the State. Then with our common and graded school system, our agricultural and polytechnic schools, the system of practical education would be complete. Such schools would have the effect of producing an exchange of vocation. The sons of farmers would become mechanics, and the sons of mechanics, tradesmen and manufacturers would have an opportunity of becoming practical tillers of the soil. The inclination and bent of the minds of our youth, could then be studied and gratified. Then would agriculture, manufactures and mechanical pursuits work together in harmony, and the best interests of each be subserved.

REPORTS FROM COUNTY AGRICULTURAL SOCIETIES.

HISTORICAL AND STATISTICAL.

The subjoined letter and blank, in June last, was addressed to the president or secretary of every county agricultural society in the State, with the following results: The objects sought were to enable this Department to comply with the act of the 11th of May, 1874, which requires it to "collect, compile and publish, annually, the productive statistics of agriculture, mining, manufacturing, commercial and other business interests of the State," and to afford the great agricultural interests of the State a medium through which it might communicate its several wants and necessities. As the objects of this Bureau become more fully and better understood, I confidently expect that hundreds, who are now ignorant of the purposes and designs of this Department, will cheerfully contribute to its usefulness. I do not expect that this Department will attain its greatest point of usefulness in one year or five, but that it will continue to be the medium; growing annually in interest, until it will ultimately be regarded as one of the greatest and most useful Departments of the State.

OFFICE OF THE
DEPARTMENT OF INTERNAL AFFAIRS,
BUREAU OF INDUSTRIAL STATISTICS,
Harrisburg, 18..

Secretary of the County Agricultural Society,

DEAR SIR:—Will you please communicate to this Bureau, statistics concerning the agricultural society or societies of your county upon the several topics embraced in the accompanying blank. In my annual report to the Legislature I desire to give a prominent place to agriculture and solicit your earnest co-operation.

Very respectfully yours,

W. HAYES GRIER,
Chief of Bureau.

1st. State when the County Agricultural Society was organized, with a list of its first officers.

2nd. State how many annual fairs have been held.

3rd. State the amount of premiums paid annually since its organization.

4th. State the amount as near as possible of the total incidental expenses of society since its organization.

5th. State whether the lands occupied by the society are owned by society or leased, and the value of same.

6th. State the value of real or personal estate of society.

7th. General remarks upon the history of the society, together with its present officers.

[Signature.]

ALLEGHENY.

According to a financial report made by the secretary of the Allegheny County Agricultural Society, for the year ending January 1, 1854, it appears that the receipts for that year were..... \$1,855 33

Expenditures 278 77

Leaving a balance in treasury of..... 1,575 56

No fair was held in 1857, as the State Society occupied the grounds of the society.

The balance brought forward and receipts for the year ending, January 1, 1857, was..... \$3,006 75

Amount of expenditures..... 659 22

Balance on hand..... 2,347 53

During the year 1858, the board of managers held monthly meetings which were well attended.

The following abstract taken from the report of the auditing committee shows the condition of the society as follows :

Dr.

January 1, 1858, balance in treasury.....	\$1,953 63
October rent from State society.....	1,500 00
Miscellaneous.....	121 00
	<hr/>
	3,574 63

Cr.

1858, Cash appropriated Farmers' High School....	\$500 00
Ground rent, State Society, etc.....	611 42
	<hr/>
	1,111 42
Balance January 1, 1859.....	2,463 21
Buildings and fixtures of society.....	3,000 00
	<hr/>
Total assets.....	5,463 21

In 1860 the treasurer reports the following condition of the finances :

Amount received from all sources.....	\$5,797 63
Amount paid as per vouchers.....	5,198 46
	<hr/>
Amount on hand.....	599 17
Amount due by Johnson.....	100 00
	<hr/>

Also the following assets belonging to the society : Thirty-nine bronze medals, thirty-two silver medals and one silver cup.

ADAMS.

Adams County Agricultural Society was organized sometime during the year 1854; but no report was made to the State Agricultural Society in relation to exhibitions until 1861.

It appears from the report for that year (1861) that during the year 1860 a township agricultural society was organized at Bendersville, and on the 24th, 25th, and 26th days of September, 1860, a fair was held.

Expenses attending the preparation of the grounds, etc.....	\$1,100 00
Receipts for membership, tickets.....	1,000 00

This was the first fair ever held in Adams county. A county agricultural society was immediately formed thereafter, and a charter granted at the November term of court.

Monday, January 7, 1861, an election of officers took place, which resulted in the selection of the following :

President, John Burkholder ; Vice Presidents, Jacob Pitzer and Wm. Walhey ; Corresponding Secretary, William B. Wilson ; Recording Secretary, George Wilson ; Treasurer, Barnet Myers ; Managers, Jonas Routzong, Wm. J. Peters, Josiah Griest, Elisha Penrose and Jacob Bear.

No later reports have been received from the society.

BEAVER.

The Beaver County Agricultural Society was organized in March, 1853.

Its first officers were Hugh Anderson, president ; William Henry, corresponding secretary ; William K. Boden, recording secretary.

At its first annual fair, which was held September 20 and 21, 1853, there were over four hundred members.

It was chartered in 1856.

Charter members : Thomas Thormiley, Hugh Anderson, D. Minnis, Jr., Robert H. Barclay, Joseph Mitchell, Richey Eakill, Peter Barnes and James Smith.

Charter amended by the Legislature July 21, 1871.

Twenty-one annual fairs have been held. The twenty-second will be held on the grounds of the society in Beaver, September 28, 29, 30 and October 1, 1875.

Amount of premiums now annually paid, \$2,000.

For the year 1874 the amount of incidental expenses, exclusive of premiums, were \$2,515 32.

The lands upon which the fair is held are owned by the society. They comprise about twenty-six acres and are worth about \$18,000.

Personal effects, \$500.

REMARKS BY THE SECRETARY.

The society was at first organized and carried on rather loosely. It was considered as a kind of an experiment, and was not liberal in its premiums and void of enterprise, but it has gradually grown and is growing. The people take a great deal of interest in it, and I believe it is now one of the very best county societies in the State.

The list of premiums is large, and the amounts offered pretty liberal. The receipts for the year 1874, were larger than any preceding year, amounting in all to the sum of \$5,850 50.

We expect the receipts for this year (1875) to be \$7,000, providing the weather proves favorable.

The following is a correct list of the present officers: Wm. H. Marshall, president; William Shroades and William M'Coy, vice presidents; Robert H. Cooper, treasurer; H. R. Moore, secretary.

MANAGERS.

East side of Ohio river: A. P. Lacock, L. H. Oatman, S. Magaw, John Boyle, Thomas Bradford.

West side of the river: N. Todd, John Andrews, W. A. Laird, Thomas O. Anshutz, Daniel Barnard.

South side of the river: James Calvert, James Orr, D. Patten, Samuel Moody, Robert Potter.

H. R. MOORE,

Secretary of the Beaver County Agricultural Society, Beaver, Pa.

BUCKS.

We have no data in relation to the organization of the agricultural society of this county, until we reach the tenth annual fair, which was held on the society's grounds at Newtown, on the 28th of September, 1853. We regret that every society in the State did not respond to our circular, that we might be able to give a brief history and synopsis of their proceedings.

The subject of agriculture comes within the jurisdiction of this department, and it would have afforded us pleasure to have been able to present to our agricultural readers, a very concise and complete history of county agricultural societies in the Commonwealth. Next year we hope to be able to do so.

At the tenth annual exhibition above referred to, the society was addressed by the Hon. Daniel M. Smyser. The exhibition was a great success.

At the thirteenth annual meeting of the society, held at Pineville, on Thursday 17th of April, 1856, it was resolved to make an application to the Legislature for an act of incorporation. The fourteenth annual exhibition of the society was held at Newtown, on Wednesday the 23d day of September, 1857, with marked success.

At the eighteenth annual meeting of the society, held on the 17th of January, 1860, showed that the receipts of the society for the preceding year had been..... \$5,679 34

Expenditures 5,679 34

Assets of the society \$7,120 37

Liabilities 3,200 00

Assets above liabilities 3,920 37

No further transactions of the society have been reported to this Bureau.

BERKS.

The preliminary meeting for the organization of the Berks County Agricultural and Horticultural Society, was held on Saturday evening, December 20, 1851, at the Keystone House, in the city of Reading, Pa. The society was formally organized at a public meeting held at the court house, on Tuesday, January 13, 1852, when the following officers were elected :

President, Dr. John P. Heister; Vice Presidents, Col. Henry Shubert, Major Henry S. Kupp; Recording Secretary, A. F. Boas; Treasurer, Adam Leize; Society incorporated in 1852.

Since the organization of the society twenty annual fairs have been held. The first fair was held in October, 1852, and an annual fair has been held every year since, with the exception of the years 1862, 1863 and 1864. The grounds of the society having been occupied during those years by the United States government, who took possession of the same in June, 1862, for hospital and camp purposes. The next annual fair will be held on the 14th, 15th, 16th and 17th of September, 1875.

For the last ten years the average annual awards for premiums have been three thousand dollars.

In 1873 the amount awarded was.....	\$3,090 50
In 1874.....do.....	3,025 50
In 1875, the amount proposed.....	<u>3,650 50</u>

The total amount awarded since the organization of the society will aggregate \$50,000.

The total amount of the incidental expenses of the society, since its organization, cannot be exactly ascertained; but exclusive of premiums will exceed \$30,000, about one-half of which was expended in the construction of the race course, and the other half in the erection of buildings and keeping in repair the track, buildings and fences.

The lands occupied by the society were obtained from the commissioners of Berks county on a lease for ninety-nine years, dated November 21, 1864. The fair ground is fifty-four acres in extent, situated at the head of Penn street, near the business centre of the city of Reading, and is worth at a low calculation \$100,000. Value of buildings, dwelling-house, grand stand, stables, cattle sheds, stalls, fences and other improvements, \$15,000

The present officers of the Berks County Agricultural and Horticultural Society are as follows :

President, A. F. Boas; Vice Presidents, Hon. J. Hagerman, Col. Joseph L. Stichter, Henry S. Eckert, Thomas Penrose, William G. Moore; Secretary, Cyrus T. Fox; Corresponding Secretary, Stephen M. Merideth; Treasurer, Matthias Mengel; Auditors, Hon. S. E. Ancona, William S. Ritter. The society meets regularly on the first Saturday of every month and is in

a very flourishing condition. Every person contributing annually the sum of one dollar is a member of the society, whether the said amount is paid for admission to the annual fair or otherwise; hence the membership extends throughout the county and is numbered by the thousand. The attendance (at the annual meeting which is usually held on the third Saturday of January of each year) is generally in the neighborhood of five hundred members showing the great interest manifested in the society.

In addition to the Berks County Agricultural Society there is another flourishing society at Kutztown, Berks county, known as "The Keystone Agricultural and Horticultural Society" which was organized in the year 1870. Its first officers were as follows: Elijah DeTuerk, president; John R. Gonser, secretary; Lewis K. Hottenstein, treasurer.

The present officers are: Elijah DeTuerk, president; Jeff. C. Hoch, secretary; A. J. Fogel, treasurer.

The next fair of this society will be held the 5th, 6th, 7th, and 8th, of October, 1875, making the sixth annual fair that has been held since its organization.

On the 17th of March, 1873, the Farmers' Club of Berks county was organized with Col. John A. Sheetz as President, and Cyrus T. Fox as Secretary and Treasurer. On the 4th of April, 1874, the club was merged in the Berks County Agricultural and Horticultural Society.

There is also a "Farmers' Club" at Geiger's Mills, Berks county, known as the Farmers' Club at Geigertown, with Jacob G. Zerr, president.

Respectfully submitted,

A. F. BOAS, *President.*

CYRUS T. FOX, *Secretary.*

Berks County Agricultural and Horticultural Society.

READING, PA., July 20, 1875.

BEDFORD.

The Bedford County Agricultural Society was organized on the 11th of February, 1852. Its officers the first year were: Hon. Joseph B. Noble, president; Gen'l James Burns, Jacob Long, Col. Alex. Compher, Wm. Chenweth, vice presidents; Samuel Brown, treasurer; William Hartley, corresponding secretary; John Mower, recording secretary.

The number of members the first year was two hundred and twenty-six.

The society held its first fair on the 29th and 30th of September, 1852.

After paying the premiums and all expenses the surplus in the treasury the first year was \$223 38.

The second year the whole amount of funds in the treasury \$770 41

Amount of premiums, expenses, &c. 547 00

Balance in treasury 223 41

We have no further data pertaining to the society until 1856, when John Mower, late secretary, reports "that our society appears to be extinct." This communication was addressed to the State Agricultural Society at Harrisburg.

On July 5, 1875, John S. Mower, secretary of the Bedford County Agricultural Society, reports to this department as follows:

The Bedford county Agricultural Society was organized, May 9, 1874, with the following named gentlemen as officers:

J. J. Shoemaker, president; J. B. Williams, T. K. Little, Joseph S. Riddle, James Burns, William S. Beegle, vice presidents; John G. Fisher, recording secretary; S. J. Jordan, corresponding secretary; Thomas M. Lynch, treasurer,

J. J. Shoemaker, resigned in July, 1874, James Burns acted until annual meeting.

The first annual fair was held in October, 1874.

The amount of premiums paid.....	\$315 55
The amount uncalled for	32 00
	<hr/>
	357 55

The amount of incidental expenses inclusive of premiums have been..... \$607 34

The lands used by the society are leased with the privilege of purchase, which the directors will do as soon as the lease requires the first payment. The land consists of fourteen acres adjoining Bedford borough.

Value.....	\$6,000 00
Improvements, fence, track, building, &c., cost.....	1,807 09
	<hr/>
Total cost.....	7,807 09

The society was incorporated as a joint stock association. Capital \$10,000, divided into 500 shares, April 26, 1875.

Stock actually subscribed, \$7,220 00; instalments thus far paid, \$1,070.

Present Officers: Jacob B. Williams, Everett, Pa., president; J. K. Little, James Burns, W. S. Beegle, Joseph S. Riddle, George Zimmers, Daniel Washabaugh, vice presidents; J. B. Williams, J. T. Gephart, J. T. Ketchum, Samuel Williams, J. F. Oster, A. E. Schell, William Lauder, H. H. Hartley, John Lutz, Wm. Hartley, directors; Thomas M. Lynch, treasurer; D. Tate, Bedford, Pa., corresponding secretary; J. S. Mower, Bedford, Pa., recording secretary.

The fair for the year 1875 will be held October 12, 1875.

JOHN S. MOWER, *Secretary.*

July 5, 1875.

BRADFORD.

Bradford County Agricultural Society organized in 1853.

Its officers were: Gen. Darius Bullock, Smithfield, president; Chauncy Frisbie, Orwell, Charles Wright, Canton, vice presidents; Edward Overton, Towanda, corresponding secretary; William Scott, Wysox, recording secretary; Henry Booth, Guy H. Watkins, Towanda, assistant secretary; William Elwell, Towanda, treasurer; Emanuel Guyer, Burlington, G. F. Redington, Troy, J. F. Means, Towanda, Joseph Towner, Rome, Jesse Brown, Sheshequin, B. Laporte, Durell, Eli Baird, Troy, W. C. Bogart, Towanda, E. W. Hale, Monroe, managers; Emanuel Guyer, W. C. Bogart, E. W. Hale, executive committee.

First fair held October 4, 1853.

Private donations made by the citizens of the borough of Towanda	\$166 00
Amount received from membership and admission to the fair...	569 00
State appropriation.	100 00
	<hr/>
	835 00

Amount disbursed:

Paid orders drawn by the executive committee for materials, labor, etc.	\$198 70
Total amount of premiums awarded	264 30

The fair was held in the court house and public square which was generously tendered to the society by the county commissioners. The square was temporarily enclosed with a fence, where a capacious shed was erected for the exhibition of farming and mechanical implements, grain, garden and field vegetables, poultry, &c. A space was set apart for the exhibition of horses. The committee were highly pleased with the various articles presented for exhibition. This being the first fair ever held in the county it was deemed a great success.

The reports of the judges show that there were exhibited neat cattle, cows, working oxen, bulls, horses, colts, breeding mares, stallions, sheep, wool, poultry, swine, field crops, garden vegetables, butter, cheese, sugar honey, early and late fruit, farming implements, manufactures, both household and mechanical.

TABLE containing the statistics of nine townships and one borough in Bradford county.

Herrick township*	12,000	\$35	\$35,000	2,500	\$1 35	1,500	90	18,000	50	...	...	12,000	65
Pike township.	20,000	35	50,000	2,000	1 35	2,500	1 00	20,000	50	...	...	20,000	65
Standing Stone township.	12,000	50	30,000	4,000	1 35	200	90	13,000	50	...	...	9,000	65
Tuscarora township.	13,000	35	25,000	3,500	90	500	90	12,000	50	...	...	11,000	65
Windham township.	14,000	37	30,000	3,000	90	3,000	90	18,000	50	...	...	17,000	65
Warren township.	16,000	33	28,000	2,700	90	1,500	90	20,000	47	...	...	18,000	65
Wysox township.	9,000	57	61,000	5,000	1 35	1,900	90	19,000	50	...	...	10,000	65
Wyalusing township.	12,000	40	48,000	5,000	1 35	1,500	90	23,000	50	...	...	11,000	65
Rome borough.	1,200	30	30,000	2,000	1 35	2,000	90	17,000	40	...	...	12,000	65
Rome township.	18,000	30	36,000	4,000	1 40	3,000	85	17,000	40	...	...	12,000	65

* Value of improvements are for improvements made during the year 1874.

Table containing the statistics of nine townships and one borough in Bradford county—Continued.

Herrick township.....	3,000	Average price per bushel...	\$2 50	Bushels of potatoes raised ..	12,000	Average price per bushel...	\$0 45	Bush. of clover seed raised,	700	Average price per bushel...	\$3 75	Pounds of tobacco raised....	.....	Average price per pound ...	.....	Pounds of wool.....	5,000	Average price per pound ...	\$3 46	Pounds of butter	200,000	Average price per pound ...	\$0 25
Pike township.....	1,000		2 50		15,000		45		800		3 75		.....		46		17,000		46		280,000		35
Standing Stone township...	200		2 50		12,000		45		400		3 50		.....		45		10,000		45		100,000		39
Tuscarora township.....	200		2 50		13,000		45		500		3 75		.....		45		11,000		45		140,000		39
Windham township.....	1,000		2 50		14,000		45		1,300		3 75		.....		46		16,000		46		200,000		35
Warren township.....	500		2 50		16,000		40		600		3 75		.....		45		20,000		45		180,000		39
Wysox township.....	600		2 50		18,000		45		700		3 75		.....		47		12,000		47		120,000		30
Wyatting township.....	500		2 50		16,000		45		700		3 75		4,000		45		16,000		45		180,000		29
Rome borough.....	300		2 50		13,000		45		500		3 50		1,700		45		14,000		45		20,000		28
Rome township.....	600		2 50		14,000		40		500		3 75		.....		45		20,000		45		185,000		33

Table containing the statistics of nine townships and one borough in Bradford county—CONTINUED.

Herrick township.....	4,000	Average price per pound ...	\$0 15	Pounds of hops.....	.....	Average price per pound ...	.....	Pounds of flax.....	.....	Average price per pound ...	.....	Pounds of maple sugar	3,000	Average price per pound ...	\$0 13	Pounds of honey	4,200	Average price per pound ...	\$0 15	Pounds of beeswax.....	1,000	Average price per pound ...	\$0 40	Tons of hay.....	4,000	Average price per ton.....	\$12 00
Pike township.....	10,000		15		.....		.....		.....		.....		4,000		13	4,000		15		2,500		35	5,000		10 00		10 00
Standing Stone township,	4,500		15		.....		.....		.....		.....		2,000		13	3,000		15		800		35	3,000		10 00		10 00
Tuscarora township.....	20,000		15		.....		.....		.....		.....		5,000		13	2,000		15		1,000		40	4,500		10 00		10 00
Windham township.....	8,000		15		.....		.....		.....		.....		2,000		15	3,500		15		1,700		35	6,000		10 00		10 00
Warren township.....	12,000		13		.....		.....		.....		.....		10,000		13	5,000		15		1,000		33	4,000		10 00		10 00
Wysox township.....	5,000		15		.....		.....		.....		.....		500		13	4,000		15		1,000		33	4,000		10 00		10 00
Wyatusing township.....	4,000		15		.....		.....		.....		.....		2,000		15	5,000		15		1,000		35	4,000		10 00		10 00
Rome borough.....	10,000		15		.....		.....		.....		.....		3,000		13	4,000		15		1,500		35	4,000		10 00		10 00
Rome township.....	11,000		14		.....		.....		.....		.....		6,000		13	5,000		15		1,500		35	4,500		11 00		11 00

Table containing the statistics of nine townships and one borough in Bradford county—Continued.

Average wages paid farm hands per day.....	00 1 00 1 00 1 00 1 00 1 00 1 00 1 00 1 00 1 00
Average wages paid farm hands per month	18 18 18 18 17 17 18 18 18 17
Number of men employed on farms	400 650 400 300 450 500 475 500 475 375
Total value of farming implements used	\$160,000 200,000 100,000 100,000 175,000 165,000 130,000 150,000 150,000 175,000
Average price per gallon....	\$1 25 1 75 1 25 1 25 1 25 1 25 1 25 1 25 1 25
Gallons of maple molasses..	1,000 2,000 1,000 2,500 2,500 800 300 1,500 2,000
Average price per gallon ...	..................................................
Galls. of sorghum molasses,	..... ..... ..... ..... ..... ..... ..... ..... ..... .....
Average price per gallon....	..... ..... \$0 25 25 28
Gallons of milk sold .....	..... ..... 3,000 5,000 6,000
Average price per gallon....	..... ..... ..... ..... ..... ..... ..... ..... ..... .....
Gallons of wine.....	..... ..... ..... ..... ..... ..... ..... ..... ..... .....
Average price per ton.....	..... ..... ..... ..... ..... ..... ..... ..... ..... .....
Tons of hemp.....	..... ..... ..... ..... ..... ..... ..... ..... ..... .....
Herrick township .....	.....
Pike township.....	.....
Standing Stone township .....	.....
Tuscarora township .....	.....
Windham township.....	.....
Warren township.....	.....
Wysox township .....	.....
Wyalusing township.....	.....
Rome borough .....	.....
Rome township.....	.....

BLAIR.

The Blair County Agricultural Society was organized on the 18th of March, 1851.

The first annual exhibition was held in October, 1853. Premiums were awarded and paid to the amount of five hundred dollars. The contributions were numerous and well selected, and the ground filled to overflowing.

Second exhibition was held on the 18th, 19th and 20th of October, 1854. Amount of premiums paid, nearly \$600.

Third annual fair held on the 7th, 8th and 9th October, 1857.

A horticultural exhibition was held on the 31st of July and 1st day of August, 1857, in which the display consisted of over one hundred varieties, exhibiting unmistakable evidence of taste and refinement on the part of our citizens, and gave general satisfaction.

During the year 1858 there were added to the library of the society a large number of volumes at a cost of one hundred and thirty-five dollars, (\$135.)

We have no further data until the following from the Blair County association :

The Blair County Association was organized and chartered May 9th, 1873.

Peter Good, president ; A. P. Morrow, Robert Warring, vice presidents ; James Gardner, treasurer ; Frederic Jaehel, recording secretary ; A. M. Loyd, corresponding secretary ; W. C. Baily, D. M. Bare and John Dean, auditing committee ; Thaddeus Banks, John Clark, C. Stewart, John Bell, Mrs. R. Moore, Wm. Jack and Solomon Lehman, executive committee.

No fair has been held under the present organization. The total incidental expenses of the society, since its organization, have been about \$150. The value of the real and personal estate of the society is from \$500 to \$600.

The present officers are the same as stated above. Nothing has as yet been done to carry out its proposed intentions, and to bring the association in working order. No arrangements for holding a fair this year have been made. Reason, general stagnation of business.

FRED. JAEHEL, *Secretary.*

CLEARFIELD.

Mr. A. G. Kramer, secretary of Clearfield County Agricultural Society reports that the Clearfield County Agricultural Society was organized in 1852.

Its first officers were : Joseph Irvin, president, and a list of twenty-eight vice presidents, one from each election district in the county.

Ten annual fairs were held. The amount of premiums paid he is unable to state as some of the books of the society have been destroyed. The society possesses no real estate. Two years ago a fair was held which did not pay expenses. A year ago last March a meeting of the society was held and the following officers elected:

R. Shaw, president; H. H. Morrow, Martin Nichols, vice presidents; A. G. Kramer, secretary; James B. Graham, treasurer.

After discovering the financial state of the society they did not organize.

In March, 1875, the secretary published a notice for a meeting of the society and no one attended, and consequently no election of officers was held. Thus the matter rests.

A. G. KRAMER, *Secretary*.

CLARION.

The Clarion County Agricultural Society was organized on the 8th of February, 1854.

The first officers were J. M. Fleming, president; I. N. Corbett, Joseph Cochrane, William M'Killup, John Trainor, Lot Watson, Abram Probasco, Ross M. Corbett, J. Foglebaugher, S. Thompson, Philip Kribbs, Benjamin Jenkins, Wm. Black, D. Brennan, George Callihan, J. H. Seigworth, Frederick Smith, Samuel Kifer, William Curll, Peter Reed, F. Mohny, Henry Oer, John Wynkoop, J. T. Pritner, George Means and Robert Stewart, vice presidents; W. T. Alexander, treasurer; Amos Myers, corresponding secretary; W. W. Barr, recording secretary; C. L. Lamberton, librarian; Miles Beaty, Peter Clover, Jr., C. Myers, G. W. Conser, Samuel Young, Richard Shippen, James Campbell, H. Craig, Wm. Framton, executive committee.

Seventeen annual fairs have been held.

During the first eight years of the society's existence the amount

of premiums paid averaged \$225 per year, equalling	\$1,800 00
The next eight years, \$345 per year, equalling	2,760 00
For the year 1874, the society paid.....	495 00
Total since its organization.....	4,905 00
Total incidentals during same time.....	4,875 00
Total of premiums and incidentals.....	9,775 00
Add the premium list for 1875.....	1,300 00
Total amount.	11,075 00

The grounds are owned by the society and are valued at \$12,000.

A mistake made by the earlier management of the society, was in issuing life membership tickets. The result is that a large number of families

have attended seventeen exhibitions for their original five dollars paid, and so will continue to attend while the society stands, and in consequence of this fact, it is now very difficult to make the receipts of the society cover the expenditures, and we are considerably in debt. With a carefully arranged list of premiums, amounting to \$1,300, and carefully selected committees, we expect a successful exhibition next fall, and satisfactory financial results. The fair this year will be held September 28, 29 and 30.

The officers elected for the year 1875, are as follows: Culberson Orr, president; William Wynian, W. P. Finley, vice presidents; C. A. Rankin, treasurer; Wm. Cramer, corresponding secretary; Samuel K. Clarke, recording secretary; James T. Maffét, librarian.

SAMUEL K. CLARKE, *Secretary.*

CLARION, PA., *July 24, 1875.*

CENTRE.

The Centre County Agricultural Society, auxiliary to the Pennsylvania State Agricultural Society, held its second annual cattle show and exhibition at Oakwood, near Bellefonte, on the 5th, 6th and 7th days of October, 1853, and was well attended by the farmers of Centre and adjoining counties. The display of horses, cattle, agricultural implements, household manufactures, and agricultural productions, were highly creditable to the exhibitors.

The aggregate amount of premiums awarded, were as follows:

On horned cattle.....	\$68 00
Sheep.....	10 00
Swine.....	20 00
Horses.....	61 00
Mules and Jacks	3 00
Poultry	3 00

Agricultural productions to be awarded in January:

Agricultural implements	8 50
Dairy and honey.....	5 00
Fruit	18 50
Vegetables	11 00
Bacon, hams.....	3 00
Household manufactures.....	28 00
Flowers.....	2 00
Plowing match.....	9 00
Sweepstake premium.....	11 00
Mechanical implements and manufactures.....	25 00
Discretionary.....	5 00

291 00

The fourth annual cattle show, held in October, 1856, premiums to the amount of \$500 were awarded. The fifth annual exhibition premiums to the amount of \$300.

The society held during this year quarterly meetings at Bellefonte. At these meetings discussions were entered upon and addresses delivered. The discussions were generally well attended.

AGRICULTURAL REPORT FROM R. M. MAGEE, CENTRE COUNTY, FOR THE YEAR 1875.

Number of acres under cultivation.....	150,000
Value of same per acre.....	\$75 00
Value of improvements: Estimated at $\frac{1}{3}$ value of farms, which are already included.	
Bushels of wheat raised.....	500,000
Average price per bushel.....	\$1 15
Bushels of rye raised.....	100,000
Average price per bushel.....	80 cts.
Bushels of Indian corn raised.....	1,500,000
Average price per bushel.....	40 cts.
Bushels of oats raised.....	500,000
Average price per bushel.....	30 cts.
Bushels of barley raised.....	30,000
Average price per bushel.....	50 to 75 cts.
Bushels of buckwheat raised.....	15,000
Average price per bushel.....	75 cts to \$1 00
Bushels of peas and beans raised.....	2,000
Average price per bushel.....	\$2 50
Bushels of potatoes raised.....	200,000
Average price per bushel.....	40 cts.
Bushels of clover seed raised.....	12,000
Average price per bushel.....	\$5 50
Bushels of grass seed raised.....	300
Average price per bushel.....	\$3 00
Pounds of wool.....	75,000
Average price per pound.....	50 cts.
Pounds of butter.....	1,200,000
Average price per pound.....	20 to 25 cts.
Pounds of cheese.....	1,000
Average price per pound.....	20 cts.
Pounds of hops.....	250
Pounds of flax.....	700
Pounds of honey.....	1,000
Average price per pound.....	25 cts.

Pounds of beeswax.....	100
Average price per pound.....	25 cts.
Tons of hay.....	35,000
Average price per ton.....	\$20 00
Gallons of wine.....	150
Average price per gallon.....	\$2 00
Gallons of milk sold.....	15,000
Average price per gallon.....	10 cts.
Total value of all farming implements used.....	\$1,000,000
Number of men employed on farms, (including owners,)..	5,000
Average wages paid farm hands per month	\$15 00
Average wages paid farm hands per day	75 cts. to \$1 00

CHESTER.

By reference to the agricultural reports for the counties of Chester and Delaware, for the year 1853, we find that there had been a very flourishing horticultural society in operation in the county of Chester, for several years. At the annual meeting in September, 1855, a resolution was adopted authorizing the executive committee to purchase suitable lands for a fair ground.

In pursuance of this resolution, the executive committee, in July following, purchased ten acres of ground in the borough of West Chester, at the rate of four hundred dollars per acre. This ground was enclosed with a substantial board fence seven feet in height, and cattle sheds and pens built around three sides of it. Temporary buildings were erected for the use of the committee and for the display of horticultural, household and such like productions as require to be under cover.

Cost of the ground.....	\$4,000
Fencing, grading trotting course, etc... ..	2,150
Total cost.....	<u>6,150</u>

The means to meet these liberal expenditures were created by a loan taken by the members of the society, mostly in twenty dollars each.

Officers for the year 1856, were Isaac W. Van Leer, president; Paschall Worth, Lewis Brinton, Richard Pim and Dr. E. V. Dickey, vice presidents; James H. Bull, William T. Ingram, recording secretaries; J. Lacy Darlington, corresponding secretary and treasurer; Dr. George Thomas, Abner Garrett, Joseph Cope, Lewis Sharpless, Marshall B. Hickman, Albert Hoopes, Thomas S. Woodward, Benjamin F. Bartolet, Caleb Brinton, Jr., executive committee.

The exhibition was held on the 21st and 22d of October, 1855. A very able address was made on the second day of the fair by James B. Everhart, Esq.

No data in relation to the proceedings of the society for the years 1856-7 are in our possession.

In 1858, the annual exhibition surpassed all former efforts of the society. It was held on the 1st and 2d days of October. No general summary of the amount of premiums paid or incidentals incurred during that year, and this Department has received no later reports. It is hoped that next year we shall be able to give a full report from Chester county.

CUMBERLAND.

The Cumberland County Agricultural Society was organized in January, 1855.

Its first officers were: George H. Bucher, president; Robert Moore, recording secretary; F. Watts, corresponding secretary; George W. Sheaffer, treasurer.

Eighteen annual fairs have been held. The premiums paid for the first year amounted to four hundred and fifty dollars, and have been gradually increasing until they have reached two thousand dollars.

Total amount of premiums paid not stated.

Total amount of incidental expenses of society since its organization, about \$800.

The society own the lands where their annual exhibitions are held, and their value, with improvements, are about \$15,000.

The society has generally been prosperous.

Present officers: Charles H. Mullin, president; Henry Saxton, treasurer; Lewis F. Lyne, secretary.

DAUPHIN.

The Dauphin County Agricultural Society was organized on the 4th day of June, 1853, with one president and vice president from each township in the county, one secretary, one librarian, one treasurer, and an executive committee.

Its first exhibition was held in 1854 under many disadvantages, with limited pecuniary results. From this time (1854) until 1858 the society was kept alive by a few public spirited gentlemen. In June, 1858, about twenty persons determined to resume the proper objects of the society. The grounds of the Harrisburg Park association were procured for the purpose of holding an exhibition.

The exhibition was held the 23d and 24th of September, and was a grand success.

The receipts from all sources were	\$3,162 54
Expenditures	3,091 27
Leaving a balance in treasury of	71 27

The society concluded its labors on the 2d of December, 1858, by discharging every claim against it.

DELAWARE.

The second annual fair of Delaware county for the promotion of agriculture, horticulture, manufactures, and the mechanic and household arts, was held in 1856.

The ladies rendered able assistance in furthering the objects of the society in making it a very successful affair.

No report in relation to the amount of premiums paid or expenses incurred is stated.

FAYETTE.

The Fayette County Agricultural Society was organized June, 1869, with the following officers:

S. H. Smith, president; Captain I. C. Woodward and Wm. Elliott, vice presidents; H. W. Robinson, treasurer; A. V. Smith, corresponding secretary; W. S. Craft, recording secretary; W. G. Patterson, Mark R. Moore, William H. Holmes, F. C. Hernon, Jacob Wolf, Joseph S. Elliott, Wm. Britton, Townsend Vanvorhis, George Dorsey, A. F. Gabler, Clark Breeding, James Rittenhouse, James Slocum, directors.

Six annual fairs have been held; the seventh will be held on the 30th day of September and the 1st day of October, 1875.

The amount of premiums paid annually since the organization of the society is about eight hundred dollars. This is not the exact amount, but an approximation. That would make about four thousand eight hundred dollars since organization. The expenses of society not including premiums, are about three thousand dollars. This amount does not include the making of track, only buildings, fence and other expenses connected with the holding of exhibitions.

The lands of the society are leased and are valued at five thousand dollars, exclusive and independent of the buildidgs.

There are forty members. Each member holds a share in the stock, which is valued at twenty-five dollars. The personal effects are \$1,000 00.

The society has been very successful thus far. They have erected halls and other buildings. The track for the trial of speed is half a mile in length and equals any in the State. The grounds are situated in the valley of the Monongahela at Brownsville, Pa.

Officers for the year 1875: George Dorsey, president; Adam Jacobs, Jr., William Clatland, vice presidents; Joseph S. Elliot, treasurer; Jesse Brewer, corresponding secretary; W. S. Craft, recording secretary; A. F. Gabler, Wm. Elliot, S. H. Smith, Mark R. Moore, Wilham G. Patterson, James Brinton, I. C. Woodward, Amos G. Cleamer, Joseph M. Thompson, directors.

W. S. CRAFT,
Recording Secretary.

GREENE.

The Greene County Agricultural Society was organized in April, 1853. The first fair was held in October, when the receipts were. . . . \$800 00
County appropriation. 150 00

Total receipts. 950 00

Expenditures—

Premiums paid. \$300 00
Purchase of lot of four acres. 400 00
Fencing. 255 00
955 00

Fair held in 1854. The entries and receipts about the same as preceding year, \$955.

In 1855, the receipts from entries were. \$400 00
Other receipts. 500 00
900 00

The expenses and receipts were about equal.

In a report made and signed by Isaac Benson, president, and Israel Craft, secretary, in the year 1861, they say: "That no agricultural society in the west has been more extensively patronized than the Greene County Agricultural and Manufacturing Society.

"The amount paid out at its last eighth annual exhibition was about four hundred dollars, (\$400.)

"The appropriation as made by general law has been used annually until last year, which was then paid over to another junior society in the county, by a misconstruction of the law."

No further data in relation to the history and proceedings of the society.

The Central Agricultural and Mechanical Fair Association of Greene county, was organized Monday, August 3, 1868, with the following officers :

Dr. D. W. Braden, president ; W. W. Sayres and Thomas Porter, vice presidents ; Samuel Montgomery, recording secretary ; R. H. Phelan, corresponding secretary ; Thomas Braden, treasurer ; John T. Hook, marshal ; John Hoge, Morgan Bell, W. A. Everly, J. L. M'Connell, Lindsey Morris, Ellis Thomas, David Johns, Hiram Smith, Jacob Shiner, David Spagg, A. B. Sampson, Alexander Wallace, Thomas Bradley, A. M. Bailey, and Joseph T. Randolph, managers.

Samuel Braden, general superintendent. Seven annual fairs have been held.

The secretary cannot state the amount of premiums paid for the first two years. Subsequently their annual premiums averaged about six hundred dollars, equalling \$3,000 for the past five years.

The expenses including printing will average about \$225 per year.

The lands occupied by the society were leased for the first three years, then bought and are owned by the company, valued at \$2,500.

The present officers are : John Mummell, president ; Dr. John D. Wood, vice president ; A. L. Myers, secretary and treasurer ; John Mummell, Dr. J. D. Wood, Joseph Eby, Joseph Ingham, Jacob Shiner, Wm. Barnes, Hon. A. A. Purman, Hon. Geo. Hoskinson, Dr. T. R. Rogers, Joseph F. Randolph and A. L. Myers, managers. All but four of the managers are farmers.

The next annual fair will be held October 14th and 15th, 1875.

A. L. MYERS, *Secretary.*

HUNTINGDON.

The Huntingdon County Agricultural Society was temporarily organized on Tuesday evening, November 12, 1854, at a meeting of the citizens of the county assembled for that purpose, and permanently on the 9th day of January following, (1855,) under a constitution and by-laws which provided for the following officers, viz : A president, and one vice president from each township, two recording and one corresponding secretaries, a librarian, treasurer and an executive committee to be composed of the above officers. The payment of an annual fee. The following are the original officers under the permanent organization :

Hon. Jona. M'Williams, president ; Joseph Reed, Gen. J. C. Watson, George Wilson, Thomas Neely, Jacob Miller, Samuel H. Bell, David Aurant, Gen. G. W. Speer, Jacob Baker, Simeon Wright, William Oak, Peter Stryker, Thomas E. Orbison, W. B. Smith, Kinzie L. Greene, A. B. San-

gree, R. T. ———, John Garner, David Parker, James Entrekin, Gardner Thompson, vice presidents; J. S. Barr, J. S. Isett, recording secretaries; Dr. J. Gemmill, corresponding secretary; Hon. James Gwin, treasurer; John H. Cremer, librarian.

The annual fairs of the society were held—

	Premiums paid.
1st, 1855, October 10th and 11th.....	\$237 00
2d, 1856, October 8th, 9th and 10th.....	255 00
3d, 1857, October 14th, 15th and 16th.....	386 50
4th, 1858, October 5th, 6th and 7th.....	438 00
5th, 1859, October 4th, 5th and 6th.....	527 50
6th, 1860, September 26th, 27th and 28th.....	304 62
7th, 1865, October 4th, 5th and 6th.....	404 00
8th, 1866, September 26th, 27th and 28th.....	877 00
9th, 1867, October 2d, 3d and 4th.....	567 00
10th, 1869, October 6th, 7th and 8th.....	675 00
11th, 1870, October 4th, 5th, 6th and 7th.....	643 80
12th, 1871, October 3d, 4th, 5th and 6th.....	947 80
13th, 1872, October 4th, 5th, 6th and 7th.....	682 70
14th, 1873, October 7th, 8th, 9th and 10th.....	995 60
15th, 1874, October 6th, 7th 8th and 9th.....	95 60
Total.....	8,037 12

The 15th annual fair of the society failed in meeting its indebtedness on account of bad weather. The incidental expenses were all met but the the society, has now a debt of over nine hundred dollars resting on it, but which its friends think will be liquidated by another year and the society once more on its feet.

The incidental expenses of the society have been—

1st year.....	\$472 00	10th year.....	\$915 00
2d...do.....	475 00	11th...do.....	960 00
3d...do.....	743 00	12th...do.....	1,260 00
4th...do.....	595 00	13th...do.....	1,370 00
5th...do.....	620 00	14th...do.....	1,059 00
6th...do.....	496 00	15th...do.....	1,064 00
7th...do.....	504 00		
8th...do.....	930 00	Total.....	11,463 00

The society has no real estate. The society, as will be observed from the foregoing table, continued to hold its regular annual exhibitions up to the breaking out of the rebellion, at which time there was a balance in its

treasury (over and above all expenses) of \$350. It, however, during the unsettled condition of the country at that time, maintained its regular organization, and has since, with the exception of one year, (1868,) continued to hold its regular annual exhibitions, with varied success. The last year was a very disastrous one owing to the bad weather, it having rained constantly during the exhibition. Arrangements are being made for holding a fair next fall, commencing on the twenty-eighth day of September, 1875. We rely on the generosity and public spirit of the friends of agricultural improvement in the county to assist in getting things once more under way, and hope for better success in the future. By a change in the original section of the constitution, providing for the election of officers, the number of vice presidents was reduced to two.

The present officers are: Jos. Watson, of Huntingdon, president; Jos. C. Wright, of Colfax, and Caleb Wakefield, of Airy Dale, vice presidents; G. Miller, of Huntingdon, treasurer; R. M'Devitt, and Hugh Lindsay, of Huntingdon, recording secretaries; J. C. Miller, of Huntingdon, corresponding secretary; J. W. Greenland, of Huntingdon, librarian.

(Signed)

R. M'DEVITT,

HUNTINGDON, PA.

Secretary.

Brady (Township.)

The Brady Agricultural Society was organized March 10, 1871.

The officers were: M. L. Shaffner, president; J. B. Wakefield, vice president; G. D. Metz, secretary; David Detweiler, treasurer.

There have been three annual fairs held:—

1st was held September 28, 1872. Receipts	\$8 00
2d ....do....October 2d and 3, 1873....do.....	43 65
3d ....do....October 2d and 3, 1874....do.....	53 50
	<hr/>
	105 15

Average amount of premiums paid annually, \$40—equalling..... \$120 00

Total amount of incidental expenses, exclusive of premiums..... 63 94

The society own no lands, but have been occupying the school ground. Value of personal property, \$24 19.

The society was organized March 10, 1871, with a membership of twenty. It met semi-monthly at Concord and Roxbury school houses, the officers only serving for three months at a time, until January, 1872, when the officers were elected for one year, and a corresponding secretary and librarian were added to its officers. Since that time the society has been receiving yearly and monthly reports, and grain and seeds from the Department at Washington. The society now numbers fifty-three members. It

now meets on the third Saturday of each month, and has done so since January, 1872. Its present officers are:

J. B. Wakefield, president; J. G. Allison, vice president; C. S. Brown, recording secretary; David Detweiler, treasurer; C. Wakefield, corresponding secretary; John Goodman, librarian.

(Signed)

C. S. BROWN,
Recording Secretary.

This little society is deserving of much praise for its commendable zeal and activity. If the same spirit pervaded the entire Commonwealth, a marked difference in the character and interest in agricultural pursuits would be the result. Success to the Brady Township Agricultural Society.

INDIANA.

The Indiana County Agricultural Society was organized January 3, 1855, by electing Hon. Thomas White, president; W. H. Coleman, H. M. Speedy, Moses T. Work, William Evans, J. Campbell, S. P. Marshal and Adam Johnston, vice presidents; George Shryock, recording secretary; John H. Lichtenberger, librarian.

Seventeen annual fairs have been held; one being held each year since the organization of the society, except in the years 1859, 1862, and 1863.

The amount of premiums paid annually since its organization is as follows:

Amount of premiums paid in 1855.....	\$25 75
Do.....do.....1856.....	295 50
Do.....do.....1858.....	387 25
Do.....do.....1860.....	540 15
Do.....do.....1861.....	357 00
Do.....do.....1864.....	232 00
Do.....do.....1865.....	617 00
Do.....do.....1866.....	740 00
Do.....do.....1867.....	887 50
Do.....do.....1868.....	772 50
Do.....do.....1869.....	390 50
Do.....do.....1870.....	438 00
Do.....do.....1871.....	407 00
Do.....do.....1872.....	711 00
Do.....do.....1873.....	839 75
Do.....do.....1874.....	967 25

Total	9,049 90
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The amount of the incidental expenses of the society have been about \$10,000.

The lands occupied by the society are owned by it and are worth about \$4,500.

In 1855 the society became possessed of six acres of land for fair purposes, paying for the same at the rate of \$140 per acre, and have held exhibitions on the ground with marked success. More money was realized at each fair than was paid out for premiums and incidental expenses, and at the present time the society has about \$1,600, while the grounds are unincumbered and well improved with good and suitable buildings for exhibition purposes. Such an interest is now taken in our fairs, that the present grounds are not sufficiently large to accommodate the people, and as the present grounds cannot be extended, other grounds adequate to the demand will be purchased the coming year. The following named persons constitute the present board of officers :

Dr. Thomas St. Clair, president ; Moses T. Work, James M'Clain, John R. Campbell, John Clawson, James H. Hamilton, T. B. Cummins, Archibald Stewart, vice presidents ; George W. Hood, recording secretary ; William R. Black, corresponding secretary ; John Weir, treasurer ; Harry Bryan, Wm. C. Gordon, George W. Kelly, Alex. Kinghorn, M. F. Jamison, Robt. A. M'Elhose, managers.

Respectfully submitted,

GEORGE W. HOOD, *Secretary.*

JUNIATA.

The Juniata County Agricultural Society was organized in 1852.

No account of the first annual fair has been received.

The second annual fair was held at Perryville on the 12th, 13th and 14th days of October, 1853. The attendance was large.

Premiums to the amount of \$300 were awarded. The society had two hundred members. The officers of the society for that year were : Everard Oles, president ; John Woodside, James Anderson, Dr. Joseph Kelley, John Watson, John P. Shitz, William Banks, Col. C. A. Thompson, Samuel Gayman, W. G. Thompson and Hon. John Dimm, vice president ; J. A. Christy, secretary and treasurer ; Lewis Burchfield, corresponding secretary ; Joseph Pomeroy, John Jacobs, George M'Culloch, Jr., Dr. John Irwin, John Kepner, Daniel Seiber and Gen. William Bell, managers.

Amount of premiums paid in 1856.....	\$276 00
Amount of premiums paid in 1857.....	260 00
Amount of premiums paid in 1858.....	217 55

No further data at hand in relation to the society.

Riverside Park and Agricultural Association of Juniata County.

This society was organized May 20, 1874, by the election of James M'Knight, president; Samuel Strayer, John B. M. Todd, J. Banks Wilson, Dr. Lucius Banks and Dr. Thomas A. Elder, as vice presidents. Directors—Jacob Suloff, E. Southard Parker, H. A. Strawbaugh, John T. Franciscus, David P. Suloff, Samuel B. Landon, T. J. Middaugh and John Hayes. Treasurer, T. Van Irwin. Secretary, Robert M'Meen.

The first annual fair was held on the 22d, 23d, 24th and 25th of September, 1874. The next annual fair will be held on the 22d, 23d and 24th of September, on the grounds of the association, one-half mile south of the borough of Mifflintown, Juniata county, Pa.

The society disbursed last year, (1874,) in premiums, \$954 26.

The incidental expenses up to this date, July 1, 1875, have

been.....	\$808 00
Cost of organizing society.....	3,458 00
	<hr/> 4,266 00

The association occupies 15 acres of land owned by Edward Parker, Esq., and pay an annual rental of \$365.

These lands are valued at \$350 per acre, and consequently are worth \$5,250.

The history of the association is very interesting, at least to those connected with its foundation. Ninety days after an organization was effected we opened a fair, at which we had more than 5,000 visitors. Within those ninety days we had placed around the grounds a tight board fence, 10 feet high, erected two exhibition buildings, 30×60 feet each, one ladies' house, 12×20, with its accommodations, a judges' stand and office, ten box stalls, thirty-eight roofed stalls for horses on exhibition, twenty stalls for sheep and hogs, and twenty-five for cattle. These were all occupied with articles and stock for exhibition and premiums.

We expect this year (1875) to have a very extensive exhibition as crops of every kind are better than they have ever been within the memory of man in this (Juniata) county.

ROBERT M'MEEN.

JULY 1, 1875.

NOTE.—The growing crops look well; wheat stands very evenly and is ripening; an unusual breadth was sown, and the yield, including ridge lands, will yield, on an average, fourteen bushels per acre. Grass is fine and hay will be very abundant; the farmers have commenced mowing. Corn looks well; a very large area planted; it is now too large to work among. Oats are good length and are growing rapidly. Apples below an average crop; many farmers having none. Peaches will be a fair yield. Potatoes promise well. The bugs not so numerous as they were last year.

R. M'MEEN.

LEBANON.

The present Lebanon county agricultural society was organized in the spring of 1874.

The former society dissolved and sold its property which was purchased by its creditors, who organized the present society by the election of the following officers :

George F. Meily, president ; F. J. Witmer, vice president ; Isaac Hoffer, secretary ; George Hoffman, treasurer ; Adolphus Reinoehl, W. B. Light, Jacob Gackley, D. T. Werner, Peter B. Knable, Richard Lee, D. B. Gingrich, George Hoffman and T. J. Witmer, directors.

An annual fair was held in 1874.

The amount of premiums paid \$840 25.

Total incidental expenses since organization \$1,410 46.

The lands occupied by the society are leased at a rental of \$350 per year.

The personal property of the society is valued at \$4,000.

[Signed]

ISAAC HOFFER, *Secretary.*

LYCOMING.

The Lycoming County Agricultural Society was organized March 24, 1855. Its first officers were :

John Green, president ; J. B. Hall and Oliver Watson, vice presidents ; Charles D. Eldred, secretary ; H. B. Parker, treasurer.

Fifteen annual fairs have been held.

The average annual premiums have been about \$1,800, equalling in the sum total, \$27,000.

Incidental expenses, \$1,200 per year for the fifteen years, \$18,000.

The grounds upon which the annual exhibitions of the society are held, are leased from the Packer estate for the period of five years from November 1, 1875, and contains about twenty acres, valued at \$4,000.

The personal property of the society consists of improvements upon the grounds to the value of \$8,000.

The present officers of the society are :

D. H. Forsman, president ; E. D. Trump, vice president ; J. W. Hays, treasurer ; William W. Hart, secretary.

The society is in a very flourishing condition, and every effort is being made by its officers to present a first class exhibition this fall. It has been the misfortune of the society in the past so frequently to have bad weather at the time of its fairs, that it has lessened its receipts, and consequently the society is somewhat burdened by an indebtedness amounting to nearly \$3,000.

WILLIAM W. HART,

Secretary.

LAWRENCE.

The Lawrence County Agricultural and Horticultural Society was organized in 1852. In 1853 the following named gentlemen were the officers of the society :

R. W. Stewart, president ; Thomas Cunningham and W. P. Hamilton, vice presidents ; D. Craig, secretary ; Webster Justice, treasurer ; John Simpson, John K. Swisher, Wm. Brown, J. P. Cowden, William Blanchard and Thomas Pearson, managers.

The society, in 1852, offered premiums to the amount of.....	\$450 00
In 1853, premiums awarded.....	250 00

The society leased for the term of ten years four and one-half acres of land near the borough of New Castle.

Receipts for the year 1855 were.....	\$937 50
Amount of premiums paid.....	500 00

Leaving for incidentals.....	437 50
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In 1856, premiums paid, \$510. No statement in relation to receipts.

In 1857, total receipts.....	\$670 50
Cash on hand from 1856.....	664 00

	1,334 50
Amount paid in premiums, etc.....	850 15

Balance in treasury.....	484 35
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1858. Amount of premiums paid.....	\$713 25
Current expenses.....	252 00

	965 25
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Leaving a balance in the treasury over and above all expenditures of \$242 69.

We have no further data in relation to the Agricultural and Horticultural Society of Lawrence county.

The Lawrence County Agricultural Society, of Harlansburg, was organized in 1871.

Andrew Nelson, president ; Alexander M'Bride, Jr., vice president ; Jesse B. Locke, secretary ; W. E. Kirker, treasurer.

Three annual fairs have been held. The average annual premiums paid since its organization have been \$1,500, amounting to \$4,500.

The total incidental expenses of the society since its organization have been \$5,000.

The lands occupied by the society are leased—value, \$7,000.

The present officers: President, John Humphrey; vice president, Alex. M'Clarren; secretary, W. H. H. Staffer; assistant secretary, Jesse B. Lock; treasurer, W. B. Wilkin.

W. H. H. STAFFER, *Secretary.*

The following was furnished by Mr. Luther Sample, a practical farmer, of Lawrence county, who says it is correct in every particular:

GEO. B. BERGER.

Number of acres under cultivation.....	150,000
Value of same per acre.....	\$50 00
Value of improvements.....	\$12,000,000 00
Bushels of wheat raised.....	250,000
Average price per bushel.....	\$1 20
Bushels of rye raised.....	25,000
Average price per bushel.....	\$1 00
Bushels of Indian corn raised.....	400,000
Average price per bushels.....	80 cts.
Bushels of oats raised.....	500,000
Average price per bushel.....	50 cts.
Bushels of barley raised.....	20,000
Average price per bushel.....	\$1 50
Bushels of buckwheat raised.....	30,000
Average price per bushel.....	80 cts.
Bushels of peas and beans raised.....	1,100
Average price per bushel..	\$2 00
Bushels of potatoes raised.....	400,000
Average price per bushel.....	\$1 00
Bushels of clover seed raised.....	1,000
Average price per bushel.....	\$6 00
Bushels of grass seed raised.....	200
Pounds of wool.....	300,000
Average price per pound.....	45 cts.
Pounds of butter.....	800,000
Average price per pound.....	25 cts.
Pounds of cheese.....	10,000
Average price per pound.....	14 cts.
Pounds of hops.....	.....
Average price per pound.....	25 cts.
Pounds of flax.....	60,000
Pounds of maple sugar.....	5,000
Average price per pound.....	15 cts.
Pounds of honey..	14,000
Average price per pound.....	30 cts.

Pounds of beeswax	200
Average price per pound	35 cts.
Tons of hay.....	30,000
Average price per ton	\$20 00
Gallons of wine.....	500
Average price per gallon	\$1 00
Gallons of milk sold.....	20,000
Average price per gallon.....	20 cts.
Gallons of sorghum molasses.....	1,500
Average price per gallon.....	75 cts.
Gallons of maple molasses.....	2,500
Average price per gallon.....	\$1 50
Total value of all farming implements used.....	\$350,000 00
Number of men employed on farms.....	500
Average wages paid farm hands per month....*	\$25 00
Average wages paid farm hands per day.....	1 25

LANCASTER.

AN HISTORICAL AND STATISTICAL SKETCH OF LANCASTER COUNTY, PA.

Lancaster, a southern border county, situated in the south-eastern division of Pennsylvania, was the first county erected, after the three original counties of Bucks, Philadelphia and Chester, established at the first settlement of the Province of Pennsylvania, under the auspices of the great founder, William Penn.

It was formed from a part of the county of * Chester, and then included all of the counties of York, Cumberland, Dauphin, Lebanon, and a part of Berks; and these included territory that subsequently became the counties of Adams, Bedford, Franklin, Mifflin, Northumberland, and adjacent counties. The present geographical limits of Lancaster county were established, finally, on the 16th of February, 1813, when the county of Lebanon was formed out of parts of her territory and Dauphin. The geometrical figure, or outline of Lancaster county, is trapezohedral in form, with its southern angle truncated and resting on "Mason and Dixon's line," which is also its southern boundary line.

On the east and south-east it is bounded by Chester; on the north-east by Berks; on the north by Lebanon; on the north-west by Dauphin; on the west and south-west by York; and on the south by the State of Maryland. The Susquehanna river separates it from York county, but its jurisdiction extends to the low-water line along the York shore of said river; therefore, all the islands in the Susquehanna, from the Dauphin county line to

the Maryland line, are within the jurisdiction of Lancaster county, whether inhabited or otherwise. The principal inland streams of Lancaster county are the Big and Little Conestoga; Big and Little Chiquesalunga; Pequea; Cocalico; Conewago, separating it from Dauphin; Conoy; Hammer; Donegal; Mill; Tucquan; Octoraro, separating it from Chester; Martic; Beaver; Muddy; Conowingo, and Fishing *creeks*; and Manor, Indian, Shawnee, Seelock, Pine, Furnace, and numerous other *runs*; affording it water powers and irrigating facilities possessed by few, if any other county, in the Commonwealth of Pennsylvania, or any other State in the Union.

From the extreme northern point of Lancaster county, that is, from the "Big Tree," in the north angle of west Cocalico township, which is the landmark of separation between the counties of Berks, Lancaster and Lebanon, to the extreme southern point of Fulton township, the distance is about thirty-nine miles and a half, and from the extreme eastern point, in Cærnarvon township, the landmark separating Berks, Lancaster and Chester counties, to the extreme western point on the Susquehanna, in Conoy township, the distance is about forty-four miles, and its superficial area is nine hundred and fifty square miles, and this area is divided into about seven thousand five hundred farms of all sizes. Of these farms, nineteen are under three acres; 930 are from three to ten acres; 950 are from ten to twenty acres; 1,425 are from twenty to fifty acres; 2,470 are from fifty to one hundred acres; 1,704 are from one hundred to five hundred, and two are over five hundred and less than one thousand acres, according to estimates based upon the census returns of 1870. In this enumeration throughout, the second or maximum factor is not inclusive—it means the fractions less than that.

The acreage of Lancaster county is 539,691; valued at \$72,525,993 00; of which 465,833 are improved lands; 62,430 forest lands, and about 10,000 acres unimproved. Basing these estimates on the census of 1870, with the usual percentage of increase added thereto, the following will be the proximate result of the products of 1875:

Of winter wheat, (which falls below 1870,).....	2,000,365	bus.
Spring wheat, (not a specialty in this county,).....	160	"
Rye of all kinds.....	88,250	"
Indian corn or maize.....	3,000,000	"
Oats of all kinds.....	1,900,500	"
Barley.....	16,000	"
Buckwheat.....	4,000	"
Peas and beans.....	1,600	"
Irish potatoes.....	500,800	"
Sweet potatoes.....	35,800	"
Clover seed.....	6,500	"

Flax seed.....	200 bus.
Grass seed.....	3,600 "
Tobacco.....	3,000,000 lbs.
Wool.....	25,000 "
Butter.....	2,500,375 "
Cheese.....	85,000 "
Beeswax.....	250 "
Flax.....	1,500 "
Hemp.....	250 tons.
Hay (below crop of 1870).....	120,000 "
Hops.....	1,100 lbs.
Honey.....	5,000 "
Wine.....	8,000 gals.
Sorghum molasses.....	13,900 "
Milk sold.....	150,600 "
Value of implements and machinery.....	\$2,800,500
Wages paid and boarding, 1875.....	2,000,000
Value of farm products and improvements.....	12,000,000
Value of orchard products.....	225,000
Products of market garden.....	90,500
Forest products.....	35,600
Products of house manufacture.....	40,500
Value of animals sold for slaughter.....	3,000,000
Value of all kinds of stock.....	6,500,300
Number of horses in the county 1875.....	24,500
Mules.....	3,000
Milch cows.....	35,000
Working oxen.....	1,190
Sheep.....	12,500
Swine.....	55,300
Other stock, including poultry.....	33,500

Principally estimated in "round numbers"

The population of Lancaster county at the census of 1870 was 113,796, but at the present period it is not less, in round numbers, than 116,000, and at the end of the present decade will be 120,000. The various occupations and business enterprises of its people, according to the latest canvass of the county, may be set down, in part, as follows :

MANUFACTORIES.

Agricultural implements.....	46	Cracker factories.....	1
Baskets.....	25	Felloe and spoke factories.....	3
Bolt works.....	1	Glove factories.....	1
Cedar ware works.....	1	Glue factories.....	2
Chair factories.....	9	Gun lock factories.....	1
Coach factories.....	63	Hair goods factories.....	8
Comb factories.....	2	Mattress factories.....	1
Coverlet factories.....	12	Mineral water factories.....	4
Cigar factories (inc. dealers)...	150	Neat's foot oil factories.....	1
Cork factories.....	1	Padlock factories.....	1
Cotton-lap factories.....	1	Paper box factories.....	3
File factories.....	1	Plane factories.....	1
Edge tool factories.....	8	Pottery factories.....	13
Hollow ware factories.....	1	Rifle factories.....	1
Horse shoe nail factories.....	1	Rope factories.....	2
Horse collar factories.....	1	Sash and door factories.....	16
Jackscrew factories.....	2	Snuff factories.....	1
Lock factories.....	2	Spoke factories.....	1
Saddle and harness factories...	21	Umbrella factories.....	4
Soap factories.....	2	Watch factories.....	1
Wagon factories.....	120	Washing machine factories....	1
Tinware factories.....	45	Wood turning factories.....	7
Copperware factories.....	21	Bakeries.....	44
Brush and broom factories.....	47	Blacksmitheries.....	276
Engine and boiler factories.....	3	Carpenters.....	278
Cabinet ware factories.....	71	Machine shops.....	15
Boot and shoe factories (in. deal.)	487	Foundries.....	7
Brick factories.....	38	Furnaces.....	13
Confectionary factories.....	68	Lime burners.....	90
Carpet factories.....	77	Millwrights.....	30
Cooperage factories.....	125	Marble yards.....	18
Gun factories (inc. dealers)....	10	Brick and stone masons.....	160
Paper mills.....	2	House painters.....	90
Bark mills (inc. dealers).....	7	Sign painters.....	20
Clover mills.....	5	Plasterers.....	86
Cotton mills.....	5	Book binderies.....	4
Fulling mills.....	7	Slaters and dealers.....	21
Grist mills.....	159	Undertakers.....	83
Saw mills.....	127	Paper hangers.....	33
Rolling mills.....	3	Pump makers.....	26
Planing mills.....	56	Watch and jewelry dealers....	36

Woolen mills	10	Tanneries.....	26
Awning factories.....	1	Tailors and clothiers.....	131
Bitters factories.....	8	Printing offices.....	32
Board box factories.....	1	Hat factories.....	1
Boiler factories.....	2		

PROFESSIONAL.

Artists	3	Architects	2
Attorneys	77	Auctioneers.....	66
Civil engineers.....	7	Contractors	42
Dental surgeons.....	38	Express agents.....	21
Florists.....	19	Horticulturists.....	5
Insurance agents.....	59	Physicians.....	159
Photographists.....	14	Patent agents.....	12
Veterinary surgeons	32	Surveyors and conveyancers...	56

MERCANTILE.

Book dealers.....	15	Bee hive dealers.....	1
Bird dealers.....	2	Lumber dealers.....	35
Coal and lumber dealers.....	75	Leather dealers.....	6
Distilleries.....	6	Drug and chemical dealers....	40
Flour and feed dealers.....	28	Grain dealers.....	18
Groceries.....	131	Hardware dealers.....	25
Hat and cap dealers.....	19	Dry goods and groceries.....	134
Queensware dealers.....	3	Groceries and queensware....	25
House furnishing.....	6	Ice dealers.....	9
Trimming and variety	30	Wine and liquor dealers.....	34
Millinery and trimming	62	Music dealers.....	18

MISCELLANEOUS.

Banks and bankers.....	24	Butchering establishments.....	154
Billiard and bowling.....	40	Dairy establishments.....	73
Restaurants and saloons.....	72	Dress making establishments...	106
Nurseries.....	18	Peddlers.....	45
Produce dealers.....	35	Stockyards and dealers.....	56
Hair dressing and shaving....	38	Sewing machine agents.....	38
Hotels and taverns.....	225	Hucksters	50
Lager beer breweries.....	19	Livery stables.....	25
Carters and Haulers.....	34	Drovers and stock dealers.....	131
Dyers.....	9	Cupping, &c.....	2

MINERALS.

Iron mines.....	22	Zinc mines.....	2
Lead mines.....	2	Nickel mines.....	1
Limestone quarries.....	25	Smelting works.....	3
Slate quarries.....	2	Curbstone quarries.....	2

EDUCATIONAL.

Colleges.....	1	Academies.....	5
Seminaries.....	3	High schools.....	6
Normal schools.....	1	Children's home school.....	1
Secondary schools.....	16	Primary schools.....	400
Colored schools.....	6	Private schools.....	10
Churches.....	250	School houses.....	436
Congregations.....	265	School teachers.....	456
Ministers.....	260	Superintendents.....	2

CIVIL AND LITERARY SOCIETIES.

Fire companies.....	19	Bands of music.....	25
Building associations.....	14	Library associations.....	15
Odd Fellows lodges.....	24	Masonic lodges.....	12
American Mechanics.....	18	Junior Mechanics.....	8
Knights of Pythias.....	16	Improved Order Red Men.....	10
Patriotic Order America.....	6	B. U. (H. F.) C. A.....	5
Good Templars.....	9	Sons of Temperance.....	2
Catholic beneficial.....	7	Grand Army of Republic.....	2
Patrons of Husbandry.....	4	Order of St. Luke.....	1
Mystic Band of Brothers.....	1	Seven Wise Men.....	1
Ancient Order of Druids.....	1	Order Mutual Protection.....	2
Knights of Mystic Chain.....	1	Trades unions.....	3
Female beneficial societies.....	2	Military companies.....	2
Love and charity societies.....	1	G. U. O. of O. F.....	1
F. O. V. B.....	1	Scientific and literary.....	4
Musical societies.....	5	Agricultural.....	3
Humane societies.....	2	Moral and religious.....	2

PUBLIC CONVENIENCES.

Railroad stations.....	47	Telegraph stations.....	30
Cemeteries.....	38	Post offices.....	269
Stage lines.....	26	Insurance companies.....	14
Notaries public.....	18	Justices and aldermen.....	94
County officers.....	42	Courts.....	3
Senators.....	2	Assemblymen.....	4
Fire insurance companies.....	8	Military companies.....	2

There are many minor occupations not inserted in these lists, and no attempt has been made to give the number of operatives that are daily engaged in them, on account of the extreme difficulty in gaining access to them. A very large proportion of the citizens of Lancaster county are engaged in agricultural pursuits. It may be safely estimated that there are 37,500 males and 15,000 females engaged more or less in agriculture, making an aggregate of 52,500, leaving 53,500 for all other occupations, less those who labor at no occupation at all.

The foregoing classification of course is very much condensed, and in order to do so it was necessary to group together interests and occupations that in a more accurately detailed account would necessarily be separated and formed into separate and distinct groups. Only the history of a few leading interests can be written out in detail. The intelligent reader may, however, be enabled to gather a general knowledge of the resources of the county. In its agricultural, mechanical and commercial capacity it is perhaps second to none in the State.

PUBLIC IMPROVEMENTS.

Although the railroad facilities of Lancaster county cannot boast of a very remarkable development, yet they are greater than may appear at a merely casual observation. The Pennsylvania Central railroad enters the county on the east, near Christiana, in Sadsbury township, and passes westwardly through that township, part of Salisbury, Paradise, Leacock, East Lampeter, Manheim, East Hempfield, West Hempfield, East Donegal and Conoy, passing out of the county near Falmouth, on the Susquehanna river, on the west; taking in its course the city of Lancaster, the boroughs of Columbia and Marietta, and the villages of Christiana, Gap, Gordonville, Enterprise, Dillerville, Rohrerstown, Mountville, Bainbridge and Falmouth; the distance between the "entrance and exit" being about forty miles. A branch road passes a distance of five miles from the junction, near Leamon Place station, through parts of Paradise and Strasburg townships and terminates at the town of Strasburg. Another branch, the "Middletown, Mount Joy and Lancaster railroad," passes from the junction at Dillerville, through the townships of East Hempfield, the northern angle of West Hempfield, Rapho, and along the northern boundaries of East and West Donegal, and the southern boundary of Mount Joy, passing out of the county near Cone-wago station, on the west, a distance of sixteen miles, taking in its course the boroughs of Mount Joy, Elizabethtown, and the villages of Landisville and Springville.

The Columbia and Reading railroad starts at the borough of Columbia, on the Susquehanna, and passes north-eastwardly through the townships of East and West Hempfield, Penn, Warwick, Ephrata and East and West Co-calico, passing out of the county near the saw mill of Jesse Lutz, on the

Berks county line, a distance of about forty miles—by rail—taking in its course the borough of Manheim and the villages of Salunga, Litiz, Ephrata, Reamstown and Reinholdsville. A branch road passes from Lancaster city, through the townships of Manheim and East Hempfield, to the "Junction," in Penn township, a distance of ten miles, taking in the village of Petersburg.

The Lancaster and Quarryville railroad passes from the intersection in Lancaster city, through the townships of Lancaster, Pequea, West Lampeter, Strasburg, Providence and Eden, and terminates at Quarryville, a distance of eighteen miles. All these railroads traverse highly fertile and populous portions of the county, and the people avail themselves largely of railroad facilities in the shipment and transportation of produce, coal, ore, lime, &c.

The Columbia and Port Deposit railroad commences at the borough of Columbia, and passes south-eastwardly along the banks of the Susquehanna, through the townships of West Hempfield, Manor, Conestoga, Martic, Dru more and Fulton, passing out of the county near Pleasant Grove, a distance of about forty miles, taking in its course the village of Safe Harbor.

The Lancaster and Millersville horse-car railroad commences in Lancaster city, and passes through Lancaster township, a distance of four miles, and terminates at Millersville, in Manor township, the seat of the first Normal school in Pennsylvania.

The Waynesburg and New Holland railroad commences at the town of New Holland in Earl township, passing through part of Earl, East Earl and along the southern line of Carnarvon, passing out of the county near Beartown, taking in the village of Goodville, a distance of about ten miles. Thus it will be seen that Lancaster county has about one hundred and seventy-nine or eighty miles of railroad within her territory. There is also about fifteen miles of the Pennsylvania canal located within the county, passing along the Susquehanna river from Falmouth, through the townships of Conoy, East Donegal and West Hempfield, to Columbia, where by a steam ferry, it communicates with the Tidewater canal at Wrightsville.

All these public improvements are in active operation, and but for the great recent relapse in railroad enterprise, a number of other projected lines would have been in successful progression, if not in active operation. But it is only a matter of time, and by the termination of the present decade, the county will have recovered from these adversities.

LUZERNE.

Sixty-five years ago, or in 1810, the Luzerne County Agricultural Society was first organized at Wilkesbarre, with the following officers:

Jesse Fell, president; Matthias Hollenback, vice president; Thomas Dyer, treasurer; Peleg Tracy, recording secretary; Dr. Rose and Jacob Cist, corresponding secretaries.

The preamble to the constitution declared the object of the society to be for the improvement and advancement of agriculture, by introducing improved breeds of horses, cattle, sheep, swine, and the best grain, such as wheat, rye, corn, etc., and the improvement of the soil and manure. No proceedings of the society have been preserved, other than a report made in 1811, on nineteen specimens of cloth presented by Mr. Ingham, all of which were pronounced creditable. The pieces particularly noticed were those wrought by Miss Luckey, Raphael Stone, R. Ingham, A. Stevens, N. Stevens, and Joseph Ingham.

There is preserved, also, a list of premiums proposed in 1824, as follows: For the best field of wheat, less than thirty acres, \$5; for the best field of corn and rye, \$5; for the best field of oats or buckwheat, less than thirty acres, \$3; for the best acre of potatoes, \$3; for the best half acre of flax, \$4; for the best quarter acre of ruta-baga turnips and tobacco, each \$3; best ram, \$3; best ewe, \$3; best bull, \$5; best cow, \$5; best piece of woolen cloth, \$5—second best, \$3; best piece of flannel, \$4; best piece of domestic carpet, \$4; best piece of linen, one yard wide, \$3; best quality of cheese, less than a hundred pounds, \$5; best sample of butter, not less than twenty pounds, \$3; best made plow, \$5; best quantity of stone fence, not less than twenty-five rods, \$5; for the best bushel of apples or peaches, \$1 50; for the best watermelon, 50 cents. For the best essay on the Hessian fly and preventing its ravages, \$5; for the best essay on the various species of curculio, and the mode of destroying them, \$5; for the best essay on agriculture or manufacture, \$5.

A number of gentlemen anxious to stimulate renewed efforts in favor of agriculture, called a meeting at the court house, in Wilkesbarre, in 1850. And after appointing delegates to the farmers' convention, to meet at Harrisburg, adjourned to meet again in January, 1851. At that subsequent meeting the second Luzerne County Agricultural Society was organized. Addresses were delivered by Judge Conyngham, General E. W. Sturdevant, S. F. Headley, Esq., and others, and in the following April, officers for the ensuing year were elected. They were General W. S. Ross, president; Hon. John Koons and Hon. William Hancock, vice presidents; S. D. Lewis, treasurer; George H. Butler, recording secretary; Washington Lee, Jr., corresponding secretary; and Charles Dorrance and W. P. Miner, curators. Two hundred farmers and other persons interested in the promotion of agriculture, united with the society and the promise was very fair, for great improvement in that direction. This, however, was a delusion. The society like almost everything else among us, withered and died away under the effect of the coal land speculation.

In 1857 the Abington Agricultural Society was organized by the citizens of Abington and held its first fair in 1858.

In 1858 the Third Luzerne County Agricultural Society was organized at Mr. Wambolds, in Kingston. Charles Dorrance, Esq., was chosen president; General E. W. Sturdevant, Samuel Wadhams, Benjamin Harvey, C. D. Shoemaker, Esqrs., and others, vice presidents.

A fair was held on the 27th and 28th of October, and was a success.

It was held on the grounds of Mr. Jenkins at Wyoming.

We are indebted for the above facts in relation to the agricultural societies of Luzerne county to Stewart Pearce, Esq., author of the annals of Luzerne county.

MONTOUR.

The Montour County Agricultural Society was incorporated April 9, 1872

Its first officers were William I. M'Kee, president; William Yorks and Charles Fenstermacher, vice presidents; Isaac Ammerman, treasurer; W. K. Halloway, recording secretary; Charles W. Eckman and Nathaniel Brittan, corresponding secretaries.

Three annual fairs have been held.

Premiums paid in 1872.....	\$896 25
Do....do....1873.....	730 50
Do....do....1874	826 10
Total	<u>2,452 85</u>

The total amount of incidental expenses since its organization, \$10,000 00

The lands occupied by the society are owned by it, and are val-

ued at	\$16,000 00
Indebtedness of society	<u>8,500 00</u>
Real estate worth above indebtedness.....	<u>7,500 00</u>

Its present officers are M. D. L. Sechler, president; Nathan Fenstermacher and Christian Earnest, vice presidents; Isaac Ammerman, treasurer; William Angle, secretary; W. C. Johnston and Adam Gerringer, corresponding secretaries.

MIFFLIN.

The Mifflin Fair Association was organized and chartered by the court, November, 1874.

William R. Graham, president; E. C. Kearns, Robert Forgy, Jr., W. W. Coleman, P. F. Smith, first board of directors; A. T. Hamilton, clerk; John Davis, treasurer.

One annual fair has been held on October 5th, 6th, 7th and 8th, 1875.

Premiums paid, \$200, and \$800 for trial of speed.

The amount of incidental expenses, including amount paid for grounds, have been—

Twenty acres of ground @ \$400 per acre.....	\$8,000 00
Track.....	2,000 00
Buildings.....	2,500 00
Fence.....	900 00
Incidentals.....	250 00
	<hr/>
	13,650 00

Same officers as at organization.

A. T. HAMILTON, *Clerk.*

MERCER.

No report.

NORTHAMPTON.

The Northampton County Agricultural Society was organized the 8th of January, 1852. The following were the officers elected :

Hon. John H. Keller, president ; Daniel Levan, Hugh Horner, Dr. W. Wilson, Jos. B. Jones, Jos. Keller, M. Hale Jones, W. H. Hutter, Peter Kemmerer, Isaac Lawall, Geo. Heiney, Geo. Mutchler, John Emery, Jos. Engler, Conrad Keichline, Jacob Sholl, Robert Levers, Rev. Samuel Hess, Daniel Odenmelder and W. Fermstone, vice presidents ; George W. Stein, recording secretary ; H. W. Crosby, corresponding secretary ; Daniel Boyer, treasurer ; Prof. Traill Green, M. D., geologist and chemist ; Dr. Evan Slough, V. Mutchler, Leonard Frankenfield, Josiah Cole, Geo. Ehret and Daniel Whitesell, executive committee.

The first fair was held on the 5th, 6th and 7th of October, 1852, and far exceeded the expectation of its friends. (The amount of premiums paid not stated.)

At the fourth annual exhibition premiums were paid to the amount of,	\$600
Fifth annual fair, premiums paid to the amount of about.....	750
Sixth annual fair, amount paid for premiums.....	625
Seventh annual fair, amount paid for premiums.....	700

A very able address was made on the occasion of holding this fair (7th) by Hon. H. D. Maxwell.

No further record in relation to the society.

NORTHUMBERLAND.

Northumberland County Agricultural Society held its first fair October 18th and 19th, 1853.

Several annual fairs were held subsequently with marked success, but no data later than 1856 is at hand.

PHILADELPHIA.

The Philadelphia Society for the Promotion of Agriculture, was organized on the 11th of February, 1785.

Its first officers were; Samuel Powel, president; Tench Francis, treasurer; Timothy Pickering, secretary.

The society own no lands, and their personal property consists in a good library and furniture.

This society, when organized, was the only agricultural society in the "American States," and one of the original rules contained the provision that, "This society shall promote the establishment of other societies * * in the principal places in the country." It has endeavored to fulfill this mission, and has itself, with the establishment of State and local societies in all the counties around Philadelphia, ceased to be an active society, holding for some years past no exhibition. Its meetings are still held monthly for the gathering of agricultural information and the discussion of questions tending to promote agriculture.

The present officers are: Charles R. King, president; Harry Ingersoll, William H. Drayton, vice presidents; Archibald R. Montgomery, secretary; A. J. Montgomery, assistant secretary; George Blight, treasurer; R. H. Hare, corresponding secretary; Edmund Evans, M. D., librarian.

(Signed)

CHARLES R. KING,

President.

SOMERSET.

The Somerset County Agricultural Society was organized in 1873. Its first officers were—

C. C. Musselman, president; F. J. Kooser, secretary; George Kemmill, treasurer; E. M. Schwerk, corresponding secretary.

Two annual fairs have been held.

The annual premiums paid since its organization.....	\$1,000 00
The incidental expenses for the year 1873.....	1,000 00
For the year 1874.....	400 00

The lands occupied by the society are owned by it and are valued at \$2,000. Realized out of sale of tickets, about \$1,400 each year.

Next annual fair will be held on the 23d, 24th, and 25th of September next.

Present officers—

JOSIAH MOWRY, *President.*

E. M. SCHWERK, *Secretary.*

TIOGA.

The Tioga County Agricultural Society was organized in the year 1854. Unable to give the names of the first officers. The officers for the year 1855 were as follows :

William B. Clymer, president; Daniel L. Sherwood, George M'Leod, B. C. Wickham, Ira Bulkley and J. S. Kingsbury, vice presidents; F. E. Smith, corresponding secretary; G. D. Smith, recording secretary; John F. Donaldson, treasurer; Robert G. White, A. E. Niles, H. M. Gerould, Lawson Copley, H. W. Calkins, Lent D. Seely, J. W. Guernsey, W. B. Metcalf, Henry Sherwood, Robert Campbell, John V. Swan, Ransler Toles, Nelson Whitney, D. S. Shore, C. H. House, Moses S. Baldwin, T. J. Soper, D. Ellis, E. T. Bentley, J. Riberoll, Chester Robinson, John Dickinson, Homer V. Elliott and James Leonard, executive committee.

The amount received from membership, State appropriation, etc., \$450 47

Amount paid in premiums, blank books and diplomas..... 282 37

Leaving a balance in treasury 168 10

In 1855 the amount received, including balance from previous

year..... \$1,036 96

Amount expended..... 736 76

Leaving a balance in treasury of..... 300 20

The address before the society in 1854 was delivered by Dr. Murdock, and at the annual exhibition in 1855 by Hon. F. E. Smith of Tioga.

The third annual fair was held on the 8th and 9th of October, 1856, and premiums to the amount of \$700 were offered. The fair was highly creditable to the exhibitors. Addresses were delivered by Messrs. Julius Sherwood and S. F. Willson, Esqrs., whose remarks were very interesting and applicable to the occasion.

In 1857 the amount received from all sources was..... \$658 41

Amount of premiums paid..... \$465 25

Other expenses..... 391 16

856 41

In 1858, amount of premiums paid..... \$465 25

The annual address was delivered by Dr. C. K. Thompson, before the society, October 2, 1858.

In 1859 the receipts from all sources were..... \$932 55

Paid in premiums. \$525 61

Other expenses..... 406 94

Hon. Horace Greeley delivered the annual address before the society

At two o'clock Mr. Greeley appeared upon the stand at the fair ground, and was introduced to the audience by Henry Sherwood, Esq., the president of the society.

After the address of Mr. Greeley, Mr. Charles G. Williams, in behalf of the ladies of Wellsboro', presented the speaker with a handsome basket of flowers, prefacing the same with a neat and appropriate speech.

The Hon. John I. Mitchell, present secretary of the society, reports :

That the annual fairs were discontinued during the war, and revived again in 1866, in which year some \$4,000 were raised to put up buildings and grade a race course. The money was expended at Wellsboro' on grounds so ill adapted to the purpose, that everybody condemned them, and that property was practically abandoned. Since that year, however, fairs have been regularly held and made reasonably successful.

The amount of premiums paid annually since the organization of the society have ranged from \$300 to \$1,500—latterly more than formerly.

The annual expenses, other than premiums, have ranged from \$300 to \$500 for carrying on the fairs.

The society has no permanent office, and the exact figures cannot be given.

The lands occupied by the society are owned by private parties, and leased at a rental of \$200.

Property, with track, worth about..... \$10,000 00

Buildings..... 3,000 00

The value of its personal estate is less than the indebtedness.

Horace Greeley addressed the society at a fair held at Wellsboro' in 1859 ; F. E. Smith, Esq., of Tioga, in 1866 ; Hon. Harry White in 1870 ; Ex-Gov. Pollock in 1874, and Prof. F. A. Allen in 1875.

Want of means is the principal obstacle ; with them a good show and great benefits may be secured any year. We have twice had a system of life membership, but the misfortunes of the society have compelled a change of organization after each, by which the pledges given were repudiated, and on this account some dissatisfaction exists in the county. This has

mostly subsided, and now there is no reason why, with good management, a good fair may not be had here every year.

The present officers are as follows :

J. B. Potter, W. P. Shumway, Nelson Claus, John Karr, John M. Butler, John E. Smith, William Campbell, John W. Bailey and C. J. Humphrey, executive committee ; Lucius Truman, marshal ; A. B. Horton and A. W. Potter, assistant marshals ; Walter Sherwood, Esq., treasurer ; Hon. S. F. Wilson, president ; Robert Campbell, vice president, and John I. Mitchell, secretary.

UNION.

The Union County Agricultural Society was organized on the 13th of November, 1852. The officers for 1853 were—

Jacob Gundy, president, Lewisburg ; Samuel Shadle, Perry, Daniel Witmer, Chapman, E. R. Mengas, Washington, Henry C. Eyer, Penns, George Dauberman, Middlecreek, John Swengel, Centre, Jacob Beaver, Beaver, H. H. Margaritz, West Beaver, Jacob Sanders, Centerville, John Wilt, Hartley, Robert B. Barber, Limestone, Abs. Swineford, New Berlin, Isaac Eyer, Union, John Gundy, East Buffalo, David Watson, West Buffalo, William Vanvalzah, Buffalo, George Driesbach, Millinburg, George R. Bliss, Lewisburg, John Moyer, Kelly, Samuel Henderson, White Deer, vice presidents ; Richard V. B. Lincoln, corresponding secretary, Hartley ; O. N. Worden, recording secretary, Lewisburg ; Robert H. Laird, treasurer, East Buffalo ; Samuel Weirick, librarian, New Berlin ; Jas. P. Ross, Lewisburg, Isaac Slenker, New Berlin, Henry W. Snyder, Penns, executive committee.

Twenty-one annual fairs have been held since its organization and all with good results.

The average amount of premiums paid annually since its organization is five hundred dollars, amounting in all to about \$10,500.

The Lewisburg, Centre and Spruce Creek railroad runs through one end of the fair ground, and at the annual fairs there is a special train running every half hour from town to the fair grounds, also run to and from Millinburg and the western end of the county, which makes it very convenient for people to attend the exhibitions.

The total incidental expenses of the society have been \$5,000. This money was expended in making fences, erecting suitable buildings and grading a half mile race course, etc.

The lands occupied by the society are owned by it, and consist of nineteen acres. They are situated in East Buffalo township, about one mile west of Lewisburg. The value of the real estate is \$5,500.

The society was organized in 1852, and on the 19th day of September obtained a charter from the court of common pleas of Union county and made it a stock society. Two hundred and one shares were sold at ten dollars per share and afterwards forty-one shares sold at fifteen dollars per share.

A two-story frame building 32x72 feet and a shed 24x100 feet was erected, together with a judges' stand, which is an ornament to the grounds. There are horse and cattle stalls erected on the ground.

The annual fairs were always a success. Last fall the exhibition was better than any year before. There were 1,099 different entries which made the exhibition a splendid one. The society is in a very flourishing condition at present.

J. A. MERTZ, *Recording Secretary.*

WARREN.

The Warren County Agricultural Society was organized in 1851.

On Wednesday, the 22d of December, 1852, a large and respectable meeting of the members of the society was held at the borough of Youngsville, for the purpose of electing officers for the ensuing year and award premiums for field crops, etc. Judge Wetmore, president of the society, in the chair.

We find no further data in relation to the proceedings of the society until 1855.

The fifth annual fair was held at Lottsville, on the 12th day of September, 1855, and exceeded the most sanguine expectations of its friends.

The receipts from all sources were.....	\$286 75
Premiums awarded.....	\$220 00
Expenses committee of arrangements.....	9 00
Secretary's services.....	10 00
	<u>239 00</u>

The following report from D. B. Jagger, secretary of the Union Agricultural Society of Warren county, will further explain the status of the society. He says: In 1857, the next fair was held in Freehold township, and from year to year moved from town to town until it finally went to Youngsville, where it was permanently located, and fairs held there for three or four years.

The society paid more premiums for fast horses than anything else and it finally became bankrupt, and the sheriff got what he could from the effects. Thus ended the Warren County Agricultural Society.

The Sugar Grove Union Agricultural Society was organized in August, 1874, and the first fair held on the 8th of October, and was a decided success. Nine hundred entries were made, consisting of 165 horses, 178 head of native and graded cattle, 78 head of full blood Durhams, Alderneys and Herefords, with numerous entries of swine, sheep, and mechanical and agricultural implements, together with a magnificent display of fruit and vegetables.

The second annual fair will be held on October 5, 6 and 7, 1875.

Premium list \$1,000.

Present Officers: Hon. E. Davis, president; E. R. Wheelock, treasurer; D. B. Jagger, secretary.

(Signed)

D. B. JAGGER,

Secretary of Union Agricultural Society.

We quote from a letter addressed to this department from D. B. Jagger, Esq., secretary, the following additional facts:

"We held our fair on the 8th of October, 1874, and it was a success. We had no money to start with except what we received at the gates. We paid all our premiums and expenses and have \$300 in the treasury. We offer \$1,000 in premiums this year (1875.) Our grounds are rented and we are erecting permanent buildings. No premiums are offered on '*fast horses*,' but for thoroughbred horses and stock we offer all we think we can pay. Our object is to get the best breed of cattle, horses, sheep and swine on exhibition.

WASHINGTON.

The Washington County Agricultural Society was organized in the year 1824, with Alexander Reed, president, and Hon. Isaac Leet, secretary and treasurer.

Fifty annual fairs have been held.

The annual premiums paid from 1824 to 1834, were \$200, ag-

gregating	\$2,000 00
For the last 40 years \$600 per annum.....	24,000 00
Total since its organization.....	26,000 00
Total incidental expenses since organization.....	16,000 00
Total for premiums and incidentals.....	42,000 00

The lands occupied by the society are owned by it, and are valued at \$8,000 00.

The society was organized in 1824, and had a membership of eighty. The payment of one dollar annually entitled the contributor to all privileges of the society. The membership afterwards increased to 260. Any one

not a member could exhibit by purchasing an exhibitors' ticket. For many years the grounds were not inclosed, and were free to all who wished to attend. At the present they are fenced, and an admittance fee is charged.

The society have two fine halls erected, at a cost of \$1,000 each. By a provision of the constitution of the society officers are elected annually. There are two other societies in the county of which this is the parent.

The good it has done and is doing is incalculable. The interest and care taken in fine stock breeding is not surpassed in the State. Every feature of agricultural interest has been awakened. Through the society, farm visiting committees have been appointed and have proved of great importance. Eight hundred reports in pamphlet form, giving a history of their work, were published and distributed free, one-half of the applicants for them not being supplied. The society sent delegates to the National Agricultural Congress, which met at Nashville, St. Louis and Indianapolis. It has spared no pains or expense in promoting the interest of agriculture in all its features. We do not think horse-racing should have anything to do with agricultural fairs, and the statements in regard to premiums and incidentals do not represent an out-lay in that direction.

Present officers: Hon. John H. Ewing, president; John M'Dowell, corresponding secretary.

JOHN M'DOWELL,

Corresponding Secretary.

WASHINGTON, PA, December 20, 1875.

Union Agricultural Association at Burgettstown, Washington County, Pa.

The association was organized in March, 1856.

President, Joseph Vance; corresponding secretary, John P. Wood.

Twenty annual fairs have been held since its organization.

The amount of premiums paid are as follows:

1856.....	\$400 00	1867.....	1,104 30
1857.....	500 00	1868.....	1,095 10
1858.....	554 00	1869.....	1,214 50
1859.....	619 00	1870.....	1,114 50
1860.....	476 25	1871.....	1,250 00
1861.....	613 50	1872.....	1,625 50
1862.....	617 35	1873.....	1,354 20
1863.....	605 00	1874.....	2,163 45
1864.....	591 60	1875.....	2,104 00
1865.....	850 00		
1866.....	856 40		19,708 65
Incidental expenses.....			17,500 00

Total expenses since organization..... 37,208 65

The grounds occupied by the society are leased at \$150 per annum. The lease extends for a period of six years yet.

The value of personal property is \$2,000.

The association has obtained a charter and the officers are elected annually, the first Saturday in January. Any person is entitled to membership and may compete for premiums by paying to the treasurer one dollar yearly, and may also vote for officers.

The association is in a very flourishing condition and is well patronized by the community. We make it a rule to pay the money back to the people. Our financial account is published annually.

Present officers—President, James Donaldson ; secretary, John P. Wood.

Chartiers Valley Agricultural Society, Cannonsburg, Washington county, Pa.

The association was organized and chartered in 1874. Its first officers were James M'Clelland, president ; John C. M'Narry, vice president ; W. S. White, secretary, and a board consisting of twenty managers, selected from the different townships in the county, whether such managers are members or not. In this way the most efficient men are obtained.

The grounds occupied by the society, are leased and are enclosed with a high fence. Have some good halls. Two annual fairs have been held.

Receipts of 1874, from entries, tickets, &c.....	\$6,119 69
Do....1875.....do.....do	3,730 71
	<hr/> 9,850 40
Expenditures—1874	\$6,119 69
Do.....1875	3,730 71
	<hr/> 9,850 40

The present membership of the society will exceed two hundred and twenty-five.

Thus far the association has been very successful.

(Signed)

JOHN M'DOWELL.

YORK.

This Department takes great pleasure in presenting the following report made by the secretary of the York County Agricultural Society, William S. Roland, Esq. He has fully comprehended the designs of this Department and has made a concise historical and statistical report.

The York County Agricultural Society was duly organized January 5, 1852, by the adoption of a constitution and election of the following named officers :

John Evans, president ; Joseph D. Wiley, John Emig, John Reiman George Snodgrass, Henry Keeney, Jacob Young, Jacob Hawer, Jacob

Cocklin, Joseph Wickersham, John Smith, Henry Logan, Arch'd Thompson, Christian S. Garber, Peter Peters, George Eichelberger, Robert Nebinger, Jacob Bahn, Benjamin H. Mosser, Joseph Detweiler, Daniel Loucks, Christian T. Raffensparger, John Weist, Jesse H. Wentz, Joseph Sultzbach, Daniel Rutter and Adam Free, vice presidents; Alexander Small, Daniel Hartman, John Whistler, Henry Smyser, Jacob B. Bachman, Geo. Hogan and Jacob Haldeman, managers; William S. Roland, recording secretary; James W. Kerr, corresponding secretary; William Wagner, treasurer.

Seventeen annual fairs have been held. The first one was held in October, 1853. In the intervening years of 1861, '62, '63 and '64 no fairs were held, for the reason that the grounds belonging to the society were used for purposes connected with the civil war.

The amount of premiums paid annually since the organization have been :

1853 and '54, prem. paid,	\$815 00	1867, prem. paid.....	1,451 00
1855, no exhibition		1868.....do.....	1,790 50
1856, prem. paid	930 00	1869.....do.....	1,890 00
1857.....do.....	1,380 00	1870.....do.....	1,949 50
1858.....do.....	1,440 00	1871.....do.....	2,137 00
1859.....do.....	1,400 00	1872.....do.....	2,195 00
1860.....do.....	1,320 50	1873.....do.....	2,399 50
1861, no exhibition		1874.....do.....	2,600 00
1862, '63, '64, no exhib'n,			
1865, prem. paid.....	1,269 03	Total.....	26,294 00
1866.....do.....	1,327 00		

The incidental expenses of the society have been :

For the years 1852, '53, '54 and '55	\$1,450 00
For the year 1856.....	588 70
Do .....1857.....	1,016 42
Do .... ..1858.....	1,192 58
Do .....1859.....	1,127 48
Do .....1860.....	1,129 57
For the years 1861, '62, '63 and 64.....	529 57
For the year 1865.....	1,198 99
Do .....1866.....	1,274 80
Do .....1867.....	1,470 00
Do .....1868.....	1,686 45
Do .....1869.....	1,805 52
Do .....1870.....	1,870 40
Do .....1871.....	1,715 03

For the year 1872.....	\$2,065 57
Do .....1873.	1,925 43
Do .....1874.....	1,967 85
Total.	<u>24,014 86</u>

The lands are owned by the society, and are located within the borough limits of York. They are assessed for taxable purposes at \$25,000. The personal property is worth about \$400.

HISTORY OF THE SOCIETY.

In the year 1851 the subject of starting a county agricultural society was first agitated. The field for beneficial operations and influences was then rather uninviting, and the undertaking to establish a society with hopes of giving it permanency and success was somewhat of an adventure; but now the fondest hopes of all its friends have been fully realized. The society was duly organized January 5, 1852, and held its first and second fairs on York commons in October, 1853-54 with marked success and encouragement. In 1855 there was no exhibition and in 1856 the third annual exhibition was held on the grounds owned by the society, and it was very successful and has so continued every successive year except in the years 1861-62-63-64 when the grounds were occupied by military encampments connected with the civil war.

The grounds of the society are situated in the south-eastern portion of the borough of York, and comprise about fifteen acres enclosed with a close board fence nine feet high. The grounds are easily reached by a good pavement from all parts of the borough.

The improvements and buildings are all first class and designed especially for comfort and convenience to visitors and exhibitors. Since 1865, annual exhibitions have been held, always commencing on the first Tuesday in October and continuing four days.

The eighteenth annual exhibition is announced to commence on Tuesday, October 5, 1875.

All the exhibitions thus far held by the society have been successful and gratifying to the managers. In 1855 a charter was obtained from the court, and in 1859 it was amended by reducing the number of vice presidents to two and the managers to five. The board now consists of eleven members. By a provision in its charter, the officers are elected annually in January. Some of the officers elected at the first meeting in 1852 are its officers now, having been re-elected from year to year. The officers elected in January, 1875, were:

John Evans, president; P. A. Small and Daniel Reiff, vice presidents; Herman Hoke, Emanuel Herman, John Ahl, Edward Smyser and Reuben

Hoffheims, managers; William S. Roland, recording secretary; A. H. Glatz, corresponding secretary; George A. Heckert, treasurer.

WILLIAM S. ROLAND,

Recording Secretary.

YORK, PA., August 2, 1875.

MAKING HAY ARTIFICIALLY.

An English journal says: On something like 6,000,000 acres of meadow hay and about 3,000,000 acres of hay from clover and other artificial grasses, there may be in the United Kingdom a total produce of 12,000,000 tons, which, taking the average value at, say £4, would be worth £48,000,000. Much of this hay is lost from storms and wet weather through the haying season. A few days since we witnessed the operation of hay drying by artificial heat. After some years of practical experimenting, Mr. Gibbs has brought his invention into the following form: A portable stove constructed of plate iron is surmounted by a fan, which is driven by a belt from a three-horse power portable steam engine; the fan draws all the heated air and gasses from the coke fire together with a volume of warmed air, which passes through a chamber surrounding the inner chamber of the stove, and blows the hot current at a temperature of four hundred degrees Fahrenheit or more, into the drier. This resembles in general shape, a straw elevator, consisting of a sheet iron trough six feet in breadth, twenty feet long if mounted on wheels as a portable carriage, or forty feet or fifty feet long, if a fixture. The trough is raised at one end at a low angle, so that hay fed in at the upper end furthest from the stove shall slowly travel to the lower end near the stove—this being assisted by a slow reciprocating motion given to the bottom of the trough. A ridge of triangular section running along the middle of the trough, divides it into two almost semi-circular channels, so that the hay passes down in two streams; the hot air issues through two slit apertures, one on each side the base of the middle ridge, and for the entire length of the machine; and the hay is kept continually stirred and lightened up over the hot blast by a number of small iron stirrers cleverly contrived to imitate the action of forks worked by hand.

We saw partly made, but wet, hay passing through the machine and converted at once into a thoroughly dry condition for the stack; we saw spoilt and musty hay dried into hay of fair apparent quality and pleasant fragrance; and we saw freshly cut grass, saturated with rain from a very heavy thunder shower which poured down at the time, dried into hay of first class color, and possessing the rich malt odor peculiar to well made hay. With a single twenty-foot machine the operation is too slow to employ fully one

man feeding off a cart and another man removing the dried product; but with two such machines side by side, or with one fixed machine of forty or fifty feet length, probably one set of carters and stackers could be kept going. From the experiments made under our supervision, it appears that while fresh and wet grass loses seventy to seventy-five per cent. of its original weight in being made into hay, the quantity of moisture in excess in partially made hay, or hay caught by a heavy rain, may be from ten to twenty per cent. To expel this water from partially made hay, requires a consumption of coke in the stove and of coal for the engine not exceeding a cost of 1s. 3d. per ton of hay dried. Preserving fresh cut grass may cost in fuel six or seven times more. With outlay for labor and wear and tear of apparatus, the total expense, according to Mr. Gibb's calculations, does not exceed 7s. or 8s. per ton, which is, indeed, a very moderate disbursement for saving a loss of perhaps pounds per ton. To make fresh cut grass into the finest hay at one stroke costs about £2 per ton of the dried hay.

COMPARATIVE TABLES OF WAGES.

I. FARM AND OTHER LABOR.

TABLE showing the average wages paid for labor in Pennsylvania in the respective years, 1860, 1870 and 1874.

	WITH BOARD.			WITHOUT BOARD.		
	1860.	1870.	1874.	1860.	1870.	1874.
<i>Daily wages:</i>						
Experienced hands in summer.....	\$0 84	\$1 35	\$1 13	\$1 22	\$1 83	\$1 57
Experienced hands in winter.....	62	1 00	84	94	1 56	1 25
Ordinary hands in summer.....	63	1 01	89	95	1 47	1 25
Ordinary hands in winter.....	51	76	72	80	1 17	1 02
Common laborers at other than farm work.....	79	1 16	99	1 19	1 65	1 40
Female servants.....	31	.....	56	.....	.....	.....
<i>Monthly wages:</i>						
Experienced hands in summer.....	\$15 28	\$25 40	\$22 32	\$24 03	.....	.....
Experienced hands in winter.....	10 13	17 75	16 83	17 30	.....	.....
Ordinary hands in summer.....	11 52	18 57	17 04	20 00	.....	.....
Ordinary hands in winter.....	8 64	14 80	13 24	14 93	.....	.....
Common laborers at other than farm work.....	13 80	20 07	19 28	20 56	.....	.....
Female servants.....	4 82	7 88	8 40	.....	.....	.....

II. MECHANICAL LABOR.

TABLE showing the average daily wages, without board, paid in Pennsylvania to persons employed in the under-mentioned trades, in the respective years 1860, 1870 and 1874.

TRADES.	1860.	1870.	1874.	TRADES.	1860.	1870.	1874.
Blacksmiths.....	\$1 47	\$2 43	\$2 32	Shoemakers.....	\$1 35	\$2 64	\$1 78
Bricklayers or masons.	1 82	3 00	2 89	Stone cutters.....	2 01	3 24	2 28
Cabinet makers.....	1 32	2 19	2 91	Tailors.....	1 34	2 07	2 14
Coopers.....	1 31	2 59	2 22	Tanners.....	1 40	2 08	2 05
Carpenters.....	1 59	2 08	2 37	Tinsmiths.....	1 37	2 17	2 15
Painters.....	1 85	2 52	2 42	Wheelrights.....	1 59	2 27	1 92
Plasterers.....	1 76	3 15	2 74				

III. WAGES IN COTTON MILLS.

TABLE showing the average weekly wages paid to persons employed in cotton mills in Pennsylvania, in 1869 and 1874.

OCCUPATION.	1869.	1874.	OCCUPATION.	1869.	1874.
<i>Carding.</i>			<i>Second hand.</i>		\$12 00
Overseer.....	\$25 00	\$15 25	Spoolers.....		†4 90
Picker tenders.....	7 00	7 00	Warpers.....		†8 25
Railway tenders.....		*4 00	Drawers and twistors.....		5 50
Drawing-frame tenders.....		†5 75	Dressers.....		9 00
Speeder tenders.....		†6 00	<i>Weaving.</i>		
Picker boy.....		*3 50	Overseers.....	\$16 00	18 00
Grinders.....		†7 25	Weavers.....	10 00	†7 75
Strippers.....	7 00	7 50	Drawing-in hands.....		†5 00
<i>Spinning.</i>			<i>Repair shop, engine room, &c.</i>		
Overseer.....	16 00	15 25	Foreman.....	11 00	15 00
Mule spinners.....	14 00	*5 00	Wood workers.....		15 00
Mule backside piecers....	2 00	*3 00	Iron workers.....		15 00
Frame spinners.....		†3 01	Engineer.....		14 50
<i>Dressing.</i>			Laborers.....	10 00	9 00
Overseer.....		15 00	Overseer in cloth-room.....	12 50	12 00

* Boys.

† Females.

‡ Part females.

IRON-ROLLING MILLS.

TABLE showing the average weekly earnings of workmen employed in the Iron Rolling Mills of Pennsylvania (with the price per ton) in the year 1874.

OCCUPATION.	Per week.	Per ton...	OCCUPATION.	Per week.	Per ton...
Puddlers	\$21 15	\$5 22	Billeters	\$7 50	.....
Puddlers' helpers	11 09	.....	Catchers	17 94	19
Shinglers	17 27	96	Roughers	20 18	6 1-10
Shinglers' helpers	8 81	.....	Heaters	24 59	64
Puddle mill rollers	16 26	44	Foremen or superintendents	27 29	.....
Top and bottom roller	27 50	6 4-5	Machinists	15 56	.....
Forge rollers .....	.....	.....	Engineers	15 24	.....
Merchant mill rollers	38 83	51	Carpenters	14 25	.....
Rail mill rollers	40 00	10 1-10	Blacksmiths	13 49	.....
Sheet and plate rollers	16 11	.....	Laborers & unskilled workmen	8 58	.....
Second rollers .....	.....	.....	Teamsters	10 79	.....
Third rollers .....	.....	.....	Apprentices and boys	4 50	.....
Furnacemen's or heater's rollers	14 29	39 7-8	Hours of labor	60	.....
Shearmen	13 67	.....		

IRON FOUNDRIES AND MACHINE SHOPS.

Average rates of wages paid per week in the iron foundries and machine shops in Pennsylvania in the respective years of 1869 and 1874.

Occupation.	1869.	1874.	Occupation.*	1869.	1870.
Iron moulders	\$17 25	\$14 00	Foremen	\$21 33	\$22 97
Machinists... best	16 80	15 41	Engineers	12 91	14 31
Do..... ordinary	14 55	12 71	Patt'n mak's, carpenters	14 92	14 69
Do..... inferior	11 89	10 43	Do..... assistants	9 29	11 38
Do..... helpers	10 18	9 02	Laborers, carters	9 29	9 59
Boiler makers	15 00	16 00	Apprentices	4 67	5 35
Do..... helpers	11 00	8 88	Millwrights .....	.....	16 62
Riveters	13 00	15 50	Do..... assistants .....	.....	8 25
Do..... holders-on,	9 00	9 88	Brass founders .....	.....	13 28
Flangers .....	.....	17 00	Fitters	14 50	14 57
Do..... helpers .....	.....	10 33	Turners .....	.....	12 81
Blacksmiths	14 15	15 38	Hours of labor per week, .....	.....	59
Do..... helpers	9 65	8 86			

THE PATRONS OF HUSBANDRY.

This organization, which originated in Washington city in 1867, under the leadership of O. H. Kelley, of Minnesota, and Hon. Wm. Saunders, Superintendent of the National Agricultural Gardens at Washington, and which spread with such wonderful rapidity over the Western and Southern States, as well as the Territories and Canada, has become firmly established in Pennsylvania. The first subordinate organization, called a "Grange," was instituted at Montgomery station, Lycoming county, by Colonel Curtis, a National Deputy. No further organizations were effected until the summer of 1873, when, through the labors of National Deputy J. Wilkinson, sent from Illinois for the purpose, the work started afresh and has moved along with but little cessation ever since.

The State Grange was organized in the city of Reading, on the 18th day of September, 1873, there being twenty-five Granges represented at that meeting. At the present time there are 593 subordinate Granges in the State, and the total membership numbers about 36,000.

The organization is entirely of an agricultural character and its constitution prescribes its membership to those "engaged in agricultural pursuits and having no interest in conflict with our purposes." It seeks the social, educational and pecuniary advancement of its members. The wives and daughters of farmers are admitted to full membership, with their husbands and brothers. Meetings are held weekly or monthly as the local organization may determine. A portion of the time at each meeting is set apart to the discussion of agriculture, horticulture, floriculture, the dairy, the household, &c., &c. Also the question of the proper management of the township schools. It is also a co-operative society, the members co-operating in their purchases of machinery, farming implements, household goods and domestic supplies, buying direct from manufactures and wholesale merchants, thus saving to themselves the usual heavy profits made by middlemen. During the years 1874 and 1875 their direct purchases amounted to over \$400,000, and their savings are estimated at more than \$100,000. They are now arranging to sell the products of their farms direct to consumers and the great commercial centres, and thereby avoid the usual commissions of forwarding merchants and grain dealers. It is a secret organization and has its signs, grips and passwords, and none but members in good standing can attend the meetings. Political and religious topics are entirely ignored in the meetings, and its leaders claim that it can never

become a party organization, or the ally of any political party. On this subject its constitution reads as follows :

“ Religious or political questions will not be tolerated as subjects of discussion in the work of the order, and no political nor religious tests shall be applied ”

FINANCIAL.

TREASURY DEPARTMENT,
OFFICE OF COMPTROLLER OF THE CURRENCY, }
WASHINGTON, *October 4, 1875.* }

SIR:—I have received your letter of the 27th ult., and in accordance with your request, enclose herewith the following statements:

1. Abstract of reports made to the Comptroller of the Currency, showing the condition of the National banks in Pennsylvania, and of those in Philadelphia and Pittsburg, at the close of business on the 30th of June, 1875.

2. Capital, surplus, dividends and earnings of the National banks in Pennsylvania, and in Philadelphia and Pittsburg, with the ratios of dividends to capital, and of earnings to capital and surplus, semi-annually, from March 1, 1869, to September, 1, 1875, as reported to the Comptroller of the Currency.

3. National banks in Pennsylvania, with the amount of capital stock and circulation of each, on October 1, 1875, as shown by the books of the office of the Comptroller of the Currency.

I shall be able sometime during the present month, to send you an abstract exhibiting the condition of the National banks of Pennsylvania, on the 1st October, inst., if you desire it.

Very respectfully,

JNO. JAY KNOX,
Comptroller.

W. H. GRIER, Esq.,

Chief Bureau Industrial Statistics, Harrisburg, Pa..

ABSTRACT of reports made to the Comptroller of the Currency, showing the condition of the National Banks in the State of Pennsylvania, and of those in Philadelphia and Pittsburg, at the close of business, on the 30th day of June, 1875

RESOURCES.	Pennsylvania.* 173 banks.		Philadelphia. 29 banks.		Pittsburg. 20 banks.	
Loans on discounts.....	\$49,388,641 47		\$47,377,363 55		\$18,353,395 85	
United States bonds to secure circulation.....	27,635,650 00		13,425,200 00		7,695,500 00	
United States bonds to secure United States deposits.....	640,000 00		200,000 00		50,000 00	
United States bonds on hand.....	446,150 00		105,300 00		477,950 00	
Other stocks, bonds and mortgages.....	2,226,327 00		2,142,241 73		150,629 02	
Due from reserve agents.....	3,676,490 47		5,216,879 65		1,172,154 39	
Due from National Banks.....	1,890,463 54		2,942,236 65		699,531 88	
Due from other bank and bankers.....	1,050,527 91		686,163 42		164,336 70	
Real estates, furniture and fixtures.....	2,310,483 75		2,298,390 95		1,074,815 01	
Current expenses and taxes.....	357,465 50		232,512 18		117,792 16	
Premiums.....	545,748 18		197,793 08		104,136 21	
Checks and other cash items.....	584,221 49		522,609 65		153,435 33	
Exchanges for clearing house.....			7,092,855 81		788,733 76	
Bills of National Banks.....	1,147,662 00		1,865,307 00		520,560 00	
Fractional currency.....	175,776 12		486,300 04		43,425 34	
Specie.....	52,324 29		252,545 82		31,401 16	
Legal tender notes.....	3,753,097 00		5,751,419 00		2,263,670 00	
United States certificates of deposits.....	40,000 00		3,740,000 00		100,000 00	
Five per cent. redemption fund.....	1,192,938 45		583,508 50		334,606 65	
Due from treasurer United States.....	165,653 56		82,471 90		89,801 40	
Totals.....	99,279,620 73		95,272,098 93		34,385,874 86	
LIABILITIES.						
Capital stock.....	\$28,785,432 00		\$16,935,000 00		\$9,910,000 00	
Surplus fund.....	7,635,744 05		7,335,379 46		2,554,503 67	
Undivided profits.....	2,010,981 07		1,210,124 33		703,006 78	
National Bank circulation outstanding.....	23,856,708 00		10,827,747 00		6,604,474 00	
State Bank circulation outstanding.....	89,325 00		31,923 00		6,908 00	
Dividends unpaid.....	224,014 23		64,601 45		51,583 25	
Individual deposits.....	33,398,780 34		47,096,332 85		12,035,223 41	
United States deposits.....	328,330 64		185,031 97		40,000 00	
Deposits of United States disbursing officers.....	12,083 88					

* Exclusive of the banks in Philadelphia and Pittsburg.

ABSTRACT OF REPORTS MADE TO THE COMPTROLLER OF THE CURRENCY, &c.—*Continued.*

LIABILITIES.			
	Pennsylvania. 173 banks.	Philadelphia. 29 banks.	Pittsburg. 20 banks.
Due to National Banks.....	\$2,215,166 73	\$9,267,268 58	\$931,843 01
Due to other banks and bankers.....	450,856 61	2,318,690 29	1,113,057 38
Notes and bills re-discounted.....	264,272 27	.....	35,275 33
Bills payable.....	10,925 91	.....	.....
Totals.....	99,279,620 73	95,272,098 93	34,385,874 86

DIVIDENDS AND EARNINGS OF THE NATIONAL BANKS IN THE STATE OF PENNSYLVANIA, AND OF THOSE IN PHILADELPHIA AND PITTSBURG, WITH THEIR RATIOS TO CAPITAL AND SURPLUS FUND, SEMI-ANNUALLY, FROM MARCH 1, 1869, TO SEPTEMBER 1, 1875, AS REPORTED TO THE COMPTROLLER OF THE CURRENCY.

	No. of banks.	Capital stock.	Surplus.	Dividends.	Net earnings.	RATIOS.		
						Dividends to capital.	Dividends to capital and surplus.	Earnings to capital and surplus.
*Pennsylvania, for 6 months ending								
August 31, 1869.....	146	\$23,355,020 00	\$4,810,860 00	\$1,296,060 00	\$1,709,086 00	5.55	4.60	6.07
February 28, 1870.....	149	23,905,240 00	4,974,496 00	1,331,635 00	1,811,543 00	5.57	4.61	6.27
August 31, 1870.....	149	23,920,240 00	5,370,668 00	1,334,560 00	1,566,199 00	5.58	4.55	5.35
February 28, 1871.....	151	24,205,240 00	5,577,481 00	1,293,860 00	1,424,050 00	5.35	4.34	4.78
August 31, 1871.....	151	24,545,240 00	5,781,467 00	1,284,381 00	1,568,270 00	5.23	4.24	5.17
February 28, 1872.....	153	25,253,240 00	5,998,420 00	1,353,347 00	1,638,464 00	5.36	4.33	5.24
August 31, 1872.....	155	26,575,090 00	6,359,964 00	1,332,980 00	1,612,149 00	5.21	4.17	5.05
March 1, 1873.....	157	27,125,240 00	6,670,671 00	1,360,783 00	1,781,134 00	5.02	4.03	5.27
September 1, 1873.....	158	26,660,580 00	7,019,439 00	1,384,980 00	1,841,315 00	5.19	4.11	5.47
March 1, 1874.....	157	26,775,240 00	7,207,493 00	1,276,651 00	1,698,259 00	4.77	3.76	5.00
September 1, 1874.....	156	26,761,590 00	7,435,885 00	1,365,441 00	1,574,945 00	5.10	3.99	4.61
March 1, 1875.....	159	27,075,240 00	7,577,135 00	1,340,510 00	1,495,391 00	4.95	3.87	4.32
September 1, 1875.....	162	27,625,240 00	7,643,549 00	1,385,087 20	1,433,186 00	5.01	3.93	4.06
Philadelphia, for 6 months ending								
August 31, 1869.....	28	16,092,150 00	6,158,302 00	979,607 00	1,178,241 00	6.89	4.40	5.29
February 28, 1870.....	29	16,355,150 00	6,197,217 00	978,758 00	1,150,597 00	5.98	4.34	5.10
August 31, 1870.....	29	16,255,150 00	6,498,576 00	942,658 00	1,062,048 00	5.79	4.14	4.67
February 28, 1871.....	29	16,255,150 00	6,537,247 00	937,258 00	1,000,230 00	5.90	4.20	4.39
August 31, 1871.....	30	16,480,150 00	6,704,033 00	942,758 00	1,023,270 00	5.70	4.03	4.41
February 28, 1872.....	30	16,935,090 00	6,804,709 00	971,750 00	1,088,461 00	5.74	4.09	4.59
August 31, 1872.....	29	16,735,000 00	6,821,824 00	964,250 00	1,081,428 00	5.76	4.09	4.59
March 1, 1873.....	29	16,735,000 00	6,916,170 00	975,930 00	1,095,087 00	5.83	4.13	4.63
September 1, 1873.....	29	16,935,000 00	7,084,979 00	983,250 00	1,127,495 00	5.81	4.09	4.70
March 1, 1874.....	29	16,935,090 00	7,105,792 00	972,250 00	1,035,211 00	5.74	4.04	4.31

*Exclusive of the banks in Philadelphia and Pittsburg.

DIVIDENDS AND EARNINGS OF THE NATIONAL BANKS, &c.—Continued.

	No. of banks..	Capital stock.	Surplus.	Dividends.	Net earnings.	RATIOS.		
						Dividends to capital.	Dividends to capital and surplus.	Earnings to capital and surplus.
September 1, 1874.....	29	\$16,935,000 00	\$7,189,152 00	\$970,500 00	\$1,079,687 00	5.73	4.02	4.48
March 1, 1875.....	29	16,935,000 00	7,189,641 00	982,572 00	1,004,393 00	5.80	4.07	4.16
September 1, 1875.....	29	16,935,000 00	7,335,957 00	924,000 00	953,885 00	5.46	3.81	3.93
Pittsburg, for 6 months ending								
August 31, 1869.....	15	8,700,000 00	2,086,777 00	479,500 00	626,063 00	5.51	4.44	5.80
February 28, 1870.....	15	8,700,000 00	2,171,125 00	447,500 00	561,630 00	5.14	4.12	5.17
August 31, 1870.....	16	9,000,000 00	2,235,774 00	464,500 00	575,889 00	5.16	4.13	5.13
February 28, 1871.....	16	9,000,000 00	2,297,158 00	463,500 00	561,177 00	5.15	4.10	4.97
August 31, 1871.....	16	9,000,000 00	2,415,177 00	482,000 00	552,755 00	5.36	4.22	4.84
February 28, 1872.....	16	9,000,000 00	2,481,622 00	487,000 00	557,482 00	5.41	4.24	4.86
August 31, 1872.....	16	9,000,000 00	2,570,277 00	479,000 00	576,970 00	5.32	4.14	4.99
February 28, 1873.....	16	9,000,000 00	2,595,443 00	498,000 00	512,235 00	5.53	4.30	4.42
August 31, 1873.....	16	9,000,000 00	2,650,741 00	503,000 00	658,449 00	5.59	4.21	5.51
March 1, 1874.....	16	9,000,000 00	2,838,604 00	459,000 00	524,024 00	5.10	3.83	4.37
September 1, 1874.....	16	9,000,000 00	3,053,928 00	489,000 00	603,004 00	5.43	4.06	5.02
March 1, 1875.....	16	9,000,000 00	3,093,585 00	471,000 00	530,425 00	5.23	3.89	4.39
September 1, 1875.....	19	9,710,000 00	2,898,238 00	466,750 00	540,669 00	4.81	3.70	4.29

NATIONAL BANKS in the State of Pennsylvania, with the amount of Capital Stock and circulation of each, October 1, 1875, as shown by the books of the Office of Comptroller of the Currency.

LOCATION.		TITLE.	Charter No.	Capital.	Circulation.
County.	Town or City.				
Allegheny.....	Allegheny.....	First..... National Bank.....	198	\$350,000 00	\$306,980 00
Do.....	do.....	Second.....	776	150,000 00	135,000 00
Do.....	do.....	Third.....	2,225	200,000 00	60,750 00
Do.....	do.....	German.....	2,261	177,543 00	31,000 00
Allegheny.....	Allegheny.....	First.....	161	250,000 00	225,000 00
Do.....	do.....	Second.....	373	300,000 00	263,300 00
Do.....	do.....	Allegheny.....	1,322	500,000 00	450,000 00
Blair.....	Altoona.....	First.....	247	150,000 00	132,200 00
Schenckkill.....	Ashland.....	do.....	403	225,000 00	202,500 00
Do.....	do.....	Citizens.....	2,280	48,930 00	32,000 00
Bradford.....	do.....	First.....	1,694	100,000 00	90,000 00
Centre.....	Athens.....	do.....	459	100,000 00	90,000 00
Bellefonte.....	Bellefonte.....	do.....	568	75,000 00	67,500 00
Columbia.....	Berwick.....	do.....	138	500,000 00	450,000 00
Northampton.....	Bethlehem.....	do.....	2,050	300,000 00	270,000 00
Do.....	do.....	Lehigh Valley.....	867	80,000 00	72,000 00
Indiana.....	Blairsville.....	First.....	293	50,000 00	45,000 00
Columbia.....	Bloomsburg.....	do.....	2,137	50,000 00	44,990 00
Berks.....	Boyetown.....	National Bank of Boyetown.....	717	92,220 00	81,950 00
Bucks.....	Bristol.....	Farmers' National Bank of Bucks county.....	135	75,000 00	65,800 00
Fayette.....	Brownsville.....	First..... National Bank.....	648	200,000 00	175,750 00
Do.....	do.....	Monongahela.....	926	100,000 00	89,000 00
Allegheny.....	Buchanan.....	First National Bank of Birmingham.....	309	100,000 00	88,300 00
Butler.....	Butler.....	First..... National Bank.....	664	110,000 00	99,000 00
Luzerne.....	Carbondale.....	do.....	1,411	500,000 00	450,000 00
Lehigh.....	Catsaqua.....	National Bank of Catsaqua.....	593	264,000 00	228,500 00
Franklin.....	Chambersburg.....	First..... Chambersburg.....	332	100,000 00	90,000 00
Delaware.....	Chesler.....	First..... National Bank.....	355	300,000 00	194,855 00
Do.....	do.....	Delaware county.....	774	100,000 00	87,000 00
Clarion.....	Clarion.....	First.....	768	100,000 00	90,000 00
Clearfield.....	Clearfield.....	do.....	855	100,000 00	67,500 00
Do.....	do.....	County.....	575	200,000 00	180,000 00
Chester.....	Coatesville.....	National Bank of Chester Valley.....			

Lancaster	Columbia	First	National Bank	116,980 00
do	do	Columbia	do	500,000 00
Crawford	Conneautville	First	do	100,000 00
Montgomery	Conshohocken	do	do	143
do	do	do	do	2,978
Erie	Corry	do	do	100,000 00
do	do	do	do	90,000 00
Clearfield	Corry	do	do	87,400 00
Montour	do	do	do	100,000 00
do	Danville	do	do	90,000 00
do	Downingtown	do	do	100,000 00
Chester	Downingtown	do	do	134,990 00
Bucks	Doylstown	do	do	180,000 00
Northampton	Easton	do	do	100,000 00
do	do	do	do	90,000 00
Erie	Erie	First	do	94,500 00
do	do	do	do	339,950 00
do	do	do	do	1,171
do	do	do	do	1,233
do	do	do	do	1,233
do	do	do	do	12
do	do	do	do	105,000 00
do	do	do	do	400,000 00
do	do	do	do	350,000 00
do	do	do	do	450,000 00
do	do	do	do	500,000 00
do	do	do	do	150,000 00
do	do	do	do	145,500 00
do	do	do	do	260,000 00
do	do	do	do	300,000 00
do	do	do	do	250,000 00
do	do	do	do	185,700 00
do	do	do	do	150,000 00
do	do	do	do	135,000 00
do	do	do	do	100,000 00
do	do	do	do	90,000 00
do	do	do	do	50,000 00
do	do	do	do	100,000 00
do	do	do	do	85,400 00
do	do	do	do	130,500 00
do	do	do	do	145,150 00
do	do	do	do	100,000 00
do	do	do	do	90,000 00
do	do	do	do	67,500 00
do	do	do	do	75,000 00
do	do	do	do	100,000 00
do	do	do	do	80,800 00
do	do	do	do	100,000 00
do	do	do	do	89,000 00
do	do	do	do	100,000 00
do	do	do	do	100,000 00
do	do	do	do	125,000 00
do	do	do	do	94,500 00
do	do	do	do	33,300 00
do	do	do	do	33,300 00
do	do	do	do	2,251
do	do	do	do	187
do	do	do	do	200,000 00
do	do	do	do	185,400 00
do	do	do	do	100,000 00
do	do	do	do	88,000 00
do	do	do	do	201
do	do	do	do	300,000 00
do	do	do	do	299,950 00
do	do	do	do	36,000 00
do	do	do	do	63,720 00
do	do	do	do	45,000 00
do	do	do	do	300,000 00
do	do	do	do	254,000 00
do	do	do	do	100,000 00
do	do	do	do	90,000 00
do	do	do	do	133,800 00
do	do	do	do	150,000 00
do	do	do	do	200,000 00
do	do	do	do	180,000 00
do	do	do	do	50,000 00
do	do	do	do	27,000 00
do	do	do	do	54,000 00
do	do	do	do	190,500 00
do	do	do	do	100,000 00
do	do	do	do	199,500 00
do	do	do	do	1,875
do	do	do	do	60,000 00
do	do	do	do	210,000 00
do	do	do	do	135,000 00
do	do	do	do	333
do	do	do	do	597

STATISTICS.

NATIONAL BANKS OF PENNSYLVANIA—CONTINUED.

LOCATION.		TITLE.		Charter No.	Capital.	Circulation.
County.	Town or City.					
Lancaster.....	Lancaster.....	Lancaster County.....	National Bank.....	683	\$300,000 00	\$263,000 00
Montgomery.....	Lansdale.....	First.....	do.....	430	100,000 00	87,500 00
Lebanon.....	Lebanon.....	do.....	do.....	240	50,000 00	45,000 00
do.....	do.....	Valley.....	do.....	655	100,000 00	87,500 00
do.....	do.....	do.....	do.....	680	200,000 00	180,000 00
Union.....	Lewisburg.....	Lewisburg.....	do.....	745	100,000 00	90,000 00
do.....	do.....	Union.....	do.....	754	100,000 00	89,953 00
Millin.....	Lewistown.....	Millin County.....	do.....	1,579	100,000 00	85,300 00
Clinton.....	Lock Haven.....	First.....	do.....	507	180,000 00	162,000 00
do.....	do.....	Lock Haven.....	do.....	1,273	120,000 00	72,000 00
Schuylkill.....	Manahoy City.....	First.....	do.....	567	84,000 00	72,000 00
Lancaster.....	Manheim.....	Manheim.....	do.....	912	100,000 00	90,000 00
do.....	Marietta.....	First.....	do.....	25	100,000 00	98,900 00
Carbon.....	Manch Chunk.....	do.....	do.....	437	400,000 00	350,000 00
do.....	do.....	Second.....	do.....	469	150,000 00	132,350 00
Allegheny.....	M'Keesport.....	First.....	do.....	2,222	50,000 00	27,000 00
Crawford.....	Meadville.....	do.....	do.....	115	100,000 00	92,000 00
do.....	do.....	Merchants'.....	do.....	871	100,000 00	90,000 00
Cumberland.....	Mechanicsburg.....	First.....	do.....	380	100,000 00	90,000 00
do.....	do.....	Second.....	do.....	326	50,000 00	49,500 00
Delaware.....	Media.....	First.....	do.....	312	100,000 00	90,000 00
Mercer.....	Mercer.....	do.....	do.....	392	120,000 00	54,000 00
do.....	do.....	Farmers' and Mechanics'.....	do.....	2,256	64,000 00	27,000 00
Somerset.....	Neversdale.....	First.....	do.....	2,258	50,000 00	40,500 00
Dauphin.....	Middletown.....	National Bank of Middletown.....	do.....	585	100,000 00	67,500 00
Union.....	Mifflintown.....	First.....	National Bank.....	174	100,000 00	83,300 00
Butler.....	Millertown.....	German.....	do.....	2,241	50,000 00	45,000 00
Dauphin.....	Millersburg.....	First.....	do.....	2,252	100,000 00	35,000 00
Northumberland.....	Milton.....	do.....	do.....	253	85,900 00	76,500 00
do.....	do.....	Milton.....	do.....	711	100,000 00	90,000 00
Schuylkill.....	Minersville.....	First.....	do.....	423	100,000 00	87,500 00
Susquehanna.....	Montrose.....	do.....	do.....	2,223	100,000 00	81,000 00
Lancaster.....	Mount Joy.....	do.....	do.....	667	100,000 00	87,350 00
do.....	do.....	Union National Mount Joy Bank.....	do.....	1,516	100,000 00	89,900 00

Westmoreland	Mount Pleasant	First	National Bank	386	150,000 00	132,100 00
Lycoming	Muncy	do	do	837	100,000 00	83,950 00
Beaver	New Brighton	National Bank of Beaver County	do	682	200,000 00	108,000 00
Lawrence	New Castle	First National Bank	do	562	150,000 00	136,000 00
Do	do	National Bank of Lawrence County	do	1,156	150,000 00	135,000 00
Bucks	Newtown	First	National Bank	324	100,000 00	88,500 00
Cumberland	Newville	do	do	60	100,000 00	90,000 00
Montgomery	Norristown	do	do	272	150,000 00	133,000 00
Do	do	Montgomery	do	1,148	400,000 00	339,000 00
Erie	North East	First	do	741	50,000 00	44,000 00
Northumberland	Northumberland	do	do	566	100,000 00	88,700 00
Yenango	Oil City	do	do	173	200,000 00	176,390 00
Chester	Oxford	National Bank of Oxford	do	728	125,000 00	112,360 00
Montgomery	Pennsburg	Perkiomen	National Bank	2,301	100,000 00	799,660 00
Philadelphia	Philadelphia	First	do	1	1,000,000 00	248,060 00
Do	do	Second	do	213	300,000 00	263,460 00
Do	do	Third	do	234	300,000 00	135,000 00
Do	do	Sixth	do	352	150,000 00	219,350 00
Do	do	Seventh	do	413	250,000 00	245,750 00
Do	do	Eighth	do	522	275,000 00	327,620 00
Do	do	Farmers' and Mechanics'	do	538	2,000,000 00	999,900 00
Do	do	Philadelphia	do	539	1,500,000 00	225,000 00
Do	do	Penn	do	540	500,000 00	436,500 00
Do	do	National Bank of Northern Liberties	do	541	500,000 00	226,250 00
Do	do	Corn Exchange	National Bank	542	300,000 00	225,000 00
Do	do	City	do	543	400,000 00	225,000 00
Do	do	Kensington	do	544	250,000 00	178,750 00
Do	do	National Bank of Germantown	do	547	200,000 00	217,250 00
Do	do	do	do	546	250,000 00	630,000 00
Do	do	Commercial National Bank of Pennsylvania	do	556	810,000 00	546,120 00
Do	do	Manufacturers'	do	557	1,000,000 00	190,070 00
Do	do	Southwark	do	560	250,000 00	270,000 00
Do	do	Consolidation	do	561	300,000 00	346,000 00
Do	do	Union	do	563	500,000 00	186,000 00
Do	do	Tradesmen's	do	570	200,000 00	569,980 00
Do	do	Girard	do	582	1,000,000 00	797,680 00
Do	do	Bank of North America	do	602	1,000,000 00	480,250 00
Do	do	Mechanics' National Bank	do	610	800,000 00	213,300 00
Do	do	Commonwealth National Bank	do	623	300,000 00	215,900 00
Do	do	Western	do	636	400,000 00	583,303 00
Do	do	Central	do	723	750,000 00	800,000 00
Do	do	National Bank of the Republic	do	1,647	1,000,000 00	180,000 00
Do	do	National Security Bank	do	1,743	250,000 00	

NATIONAL BANKS OF PENNSYLVANIA—CONTINUED.

LOCATION.		TITLE.	Charter No.	Capital.	Circulation.
County.	Town or City.				
Philadelphia	Philadelphia	Keystone National Bank	2,291	\$200,000 00	845,000 00
Chester	Phoenixville	National Bank of Phoenixville	674	200,000 00	176,300 00
Do	do	Farmers' and Mechanics' National Bank	1,936	150,000 00	135,000 00
Allegheny	Pittsburg	First	48	750,000 00	117,100 00
Do	do	Second	252	300,000 00	264,200 00
Do	do	Third	291	500,000 00	331,650 00
Do	do	Fourth	432	300,000 00	235,700 00
Do	do	Merchants' and Manufacturers' National Bank	613	800,000 00	628,400 00
Do	do	Citizens' National Bank	619	800,000 00	441,010 00
Do	do	Pittsburg National Bank of Commerce	668	500,000 00	450,000 00
Do	do	Iron City	675	400,000 00	351,000 00
Do	do	Tradesmen's	678	400,000 00	350,000 00
Do	do	Farmers' Deposit	685	300,000 00	270,000 00
Do	do	Mechanics'	700	500,000 00	447,750 00
Do	do	Union	705	250,000 00	218,000 00
Do	do	Allegheny	722	500,000 00	437,500 00
Do	do	People's	727	1,000,000 00	757,950 00
Do	do	German	757	250,000 00	220,000 00
Do	do	Exchange	1,057	1,700,000 00	756,300 00
Do	do	City	2,195	200,000 00	30,000 00
Do	do	Diamond	2,236	200,000 00	45,000 00
Do	do	Marine	2,237	200,000 00	45,000 00
Do	do	Duquesne	2,278	140,000 00	45,000 00
Do	do	Metropolitan	2,279	140,000 00	45,000 00
Do	do	Snitfield	2,281	140,105 00	45,000 00
Do	do	First	478	500,000 00	450,000 00
Do	Pittston	do	707	100,000 00	90,000 00
Do	do	National Bank of Pottstown	608	300,000 00	270,000 00
Montgomery	Pottstown	Miners' National Bank	619	500,000 00	350,000 00
Schuylkill	Pottsville	Government	1,152	500,000 00	450,000 00
Do	do	Pennsylvania	1,663	200,000 00	77,200 00
Berks	Reading	First	125	100,000 00	83,425 00
Do	do	National Union Bank	695	500,000 00	135,000 00

Berks.....	Reading.....	Farmers' National Bank.....	696	400,000 00	319,900 00
Montgomery.....	Schenksville.....	National Bank of Schenksville.....	2,142	100,000 00	45,000 00
Luzerne.....	Scranton.....	First..... National Bank.....	77	300,000 00	194,200 00
Do.....	do.....	Second..... do.....	49	300,000 00	283,300 00
Do.....	do.....	Third..... do.....	1,916	200,000 00	90,000 00
Snyder.....	Selinsgrove.....	First..... do.....	357	100,000 00	87,400 00
Northernberland.....	Shamokin.....	Northernberland County National Bank.....	689	67,000 00	69,800 00
Do.....	do.....	First..... do.....	1,685	125,000 00	74,560 00
Cumberland.....	Sharon.....	Sharon..... do.....	2,244	180,000 00	31,500 00
Lehigh.....	Shippensburg.....	First..... do.....	834	75,000 00	65,700 00
Chester.....	Slatington.....	National Bank of Slatington.....	2,293	150,000 00	
Do.....	do.....	do..... do.....	2,018	150,000 00	126,900 00
Lancaster.....	Spring City.....	First..... Spring City.....	42	100,000 00	99,000 00
Northernberland.....	Strasburg.....	do..... National Bank.....	1,287	200,000 00	180,000 00
Susquehanna.....	Sunbury.....	do..... do.....	1,653	100,000 00	90,000 00
Schuylkill.....	Susquehanna Depot.....	do..... do.....	1,219	150,000 00	131,500 00
Allegheny.....	Tamaqua.....	do..... do.....	2,285	50,000 00	27,000 00
Crawford.....	Tarentum.....	do..... do.....	879	300,000 00	270,000 00
Bradford.....	Titusville.....	Second..... do.....	39	125,000 00	109,800 00
Schuylkill.....	Towanda.....	First..... do.....	797	100,000 00	84,980 00
Wyoming.....	Tremont.....	do..... do.....	835	100,000 00	90,000 00
Eric.....	Tunkhannock.....	Wyoming..... do.....	110	50,000 00	43,000 00
Fayette.....	Union City.....	First National Bank of Union Mills.....	270	100,000 00	90,000 00
Do.....	Uniontown.....	First National Bank.....	681	100,000 00	85,400 00
Warren.....	do.....	National Bank of Fayette County.....	520	100,000 00	90,000 00
Do.....	Warren.....	First..... National Bank.....	2,226	50,000 00	27,000 00
Washington.....	Washington.....	Citizens'..... do.....	586	150,000 00	135,000 00
Franklin.....	Waynesboro'.....	First..... do.....	214	75,000 00	67,500 00
Greene.....	Waynesburg.....	do..... Waynesboro'.....	839	150,000 00	81,000 00
Tioga.....	Wellsboro'.....	Farmers' and Provers'..... do.....	328	100,000 00	86,200 00
Chester.....	West Chester.....	First..... do.....	148	200,000 00	179,950 00
Do.....	do.....	do..... do.....	552	225,000 00	202,500 00
Luzerne.....	Wilkesbarre.....	National Bank of Chester County.....	30	375,000 00	337,400 00
Do.....	do.....	First..... National Bank.....	104	450,000 00	400,000 00
Do.....	do.....	Second..... do.....	732	150,000 00	134,900 00
Lycorning.....	Williamsport.....	Wyoming..... do.....	175	284,950 00	249,200 00
Do.....	do.....	First..... do.....	754	100,000 00	85,000 00
Do.....	do.....	Lambertman's..... do.....	1,464	100,000 00	64,940 00
Do.....	do.....	Williamsport..... do.....	1,505	100,000 00	90,000 00
Do.....	do.....	West Branch..... do.....	2,189	100,000 00	90,000 00
Do.....	do.....	City..... do.....	2,297	99,600 00	30,600 00
Do.....	do.....	do..... do.....	246	150,000 00	135,000 00
York.....	Wrightsville.....	Lycorning..... do.....	197	300,000 00	299,920 00
Do.....	York.....	First..... do.....			

NATIONAL BANKS OF PENNSYLVANIA—CONTINUED.

LOCATION.		TITLE.	Charter, No.	Capital.	Circulation.
County.	Town or City.				
York	York	York.....National Bank.....	601	\$500,000 00	\$439,700 00
Do.	do.	York County.....do.....	694	320,000 00	269,900 00
Do.	do.	Farmers'.....do.....	2,228	200,000 00	180,000 00
				56,926,318 00	42,922,423 00

STANDARD MONEY VALUES—1875.

TREASURY DEPARTMENT,
WASHINGTON, D. C., *January 1, 1875.* }

The first section of the act of March 3, 1873, provides "that the value of foreign coin, as expressed in the money of account of the United States, shall be that of the pure metal of such coin of standard value," and that "the values of the standard coins in circulation of the various nations of the world shall be estimated annually by the Director of the Mint, and be proclaimed on the first day of January by the Secretary of the Treasury." The estimate of values contained in the following table has been made by the Director of the Mint, and is hereby proclaimed, in compliance with the above stated provisions of law :

Country.	Monetary unit.	Standard.	Value in U. S. money.
Argentine Republic.....	Peso fuerte.....	Gold.....	\$1 00
Austria.....	Florin.....	Silver.....	45.3
Belgium.....	Franc.....	Gold and silver.....	19.3
Bolivia.....	Dollar.....	Gold and silver.....	96.5
Brazil.....	Milreis of 1,000 reis.....	Gold.....	54.5
British Pos. in N. America,	Dollar.....	Gold.....	1 00
Bogota.....	Peso.....	Gold.....	91.2
Central America.....	Dollar.....	Silver.....	91.8
Chili.....	Peso.....	Gold.....	91.2
Cuba.....	Peso.....	Gold.....	92.5
Denmark.....	Crown.....	Gold.....	26.8
Ecuador.....	Dollar.....	Silver.....	91.8
Egypt.....	Pound of 100 piasters.....	Gold.....	4 97.4
France.....	Franc.....	Gold and silver.....	19.3
Great Britain.....	Pound sterling.....	Gold.....	4 86.6 ¹ / ₂
Greece.....	Drachma.....	Gold and silver.....	19.3
German Empire.....	Mark.....	Gold.....	23.8
Hayti.....	Dollar.....	Silver.....	95.2
Japan.....	Yen.....	Gold.....	99.7
India.....	Rupce of 16 annas.....	Silver.....	43.6
Italy.....	Lira.....	Gold and silver.....	19.3
Liberia.....	Dollar.....	Gold.....	1 00
Mexico.....	Dollar.....	Silver.....	99.8
Netherlands.....	Florin.....	Silver.....	38.5
Norway.....	Crown.....	Gold.....	26.8
Paraguay.....	Peso.....	Gold.....	1 00
Peru.....	Dollar.....	Silver.....	91.8
Porto Rico.....	Peso.....	Gold.....	92.5
Portugal.....	Milreis of 1,000 reis.....	Gold.....	1 08.4
Russia.....	Rouble of 100 copecks.....	Silver.....	73.4
Sandwich Islands.....	Dollar.....	Gold.....	1 00
Spain.....	Peseta of 100 centimes.....	Gold and silver.....	19.3
Sweden.....	Crown.....	Gold.....	26.8
Switzerland.....	Franc.....	Gold and silver.....	19.3
Tripoli.....	Mahbub of 20 piasters.....	Silver.....	82.9
Tunis.....	Piaster of 16 caroubs.....	Silver.....	11.8
Turkey.....	Piaster.....	Gold.....	94.3
U. S. of Colombia.....	Peso.....	Silver.....	91.8
Uruguay.....	Patacon.....	Gold.....	94.9

(Signed)

BENJ. H BRISTOW,

Secretary of the Treasury.

AN ABSTRACT of the returns made by the commissioners of the city of Philadelphia and the several counties of the Commonwealth of Pennsylvania, in pursuance of a requisition of the Committee of Ways and Means of the House of Representatives of the said Commonwealth, and printed by order of the said House.

To this abstract is added, the date at which the several counties were laid out—the number of taxable inhabitants in each—and the value of real property in the said city and counties respectfully—adjusted by the said committee so as, in their opinion, to form a good rule for apportioning amongst them, any tax that may be assessed upon the real estates of the inhabitants of this State.

The 1st and 3d columns show the date of the counties and the number of taxable inhabitants in each for the year 1814. The 2d, 4th, 5th, 6th, 7th, 8th, 9th, 10th, 11th, 12th, 13th, 14th and 15th, contains the abstract from the commissioners' returns, and the 16th is the adjusted value per acre of land in each county; the 17th column contains the amount of the valuation of real property in each county as adjusted by the said committee.

The 12th, 13th and 14th columns are incomplete in consequence of the imperfect returns of the commissioners.

The commissioners in their returns designating the quantity of land of first, second, third and fourth rates in their respective counties, had no reference to lands in their neighboring counties, hence no judgment can be formed by a comparison of what is called first rate in one county with that of the same rate in another. For what is termed first rate in one county, would hardly be fourth rate in another. And so of the other rates.

After making the usual allowance for roads and highways and ample allowance for rivers and rivulets, there will be something more than a million and a half of acres unaccounted for.

N. B.—The commissioners of the counties of Indiana, Jefferson, Potter, Tioga and Schuylkill having made no returns, the committee have supplied the defect by an estimate of the quantity of land in each of those counties.

THE FOLLOWING TABLE IS INTRODUCED TO SHOW THE COMPARATIVE PROGRESS IN THE COMMONWEALTH IN SIXTY YEARS :

DATE.	COUNTIES.		1.	2.	3.	4.	5.	6.	7.	8.	9.
	Taxable inhabitants for 1814,										
1729...	Philadelphia city*	9,383									
1749-50,	Bucks*	10,486									
1752...	Chester*	7,066									
1771...	Lancaster...	8,072									
1772...	York...	11,346									
1773...	Cumberland...	6,772									
1781...	Berks...	5,971									
1783...	Northampton...	7,390									
1784...	Bedford...	4,523									
1785...	Northumberland...	3,351									
1786...	Westmoreland...	1,687									
1787...	Washington...	5,370									
1788...	Fayette...	6,780									
1789...	Franklin...	4,579									
1790...	Montgomery...	4,493									
1791...	Dauphin...	6,221									
1792...	Lebanon...	3,348									
1793...	Huntingdon...	2,379									
1794...	Allegheny...	3,502									
1795...	Mifflin...	5,588									
1796...	Delaware...	3,063									
1797...	Lycoming...	2,631									
1798...	Somerset...	1,858									
1799...		2,191									
Assessed value per acre....											
Third and fourth-rate land,											
Assessed value per acre....											
Second-rate land.....											
Assessed value per acre....											

* At commence ment of the Provincial Government.

Comparative progress in the Commonwealth—CONTINUED.

DATE.	COUNTIES.	10.	11.	12.	Amount of assessed value of lands....	Assessed value personal property.....	Amount of the assessed value of real and personal property in the city and several counties.....	16.	Adjusted average price per acre by the Committee of Ways and Means..	17.	Amount of the value of the real estate in the city and the several counties, as adjusted by the Committee of Ways and Means.....
1.	2.										
.....	Philadelphia city*.....	74,521	.....	.....	.....	.....	\$28,231,938 00	.....	.....	\$28,231,938 00	.....
.....	Philadelphia county*.....	879 16	.....	.....	.....	.....	18,390,804 00	.....	.....	18,390,804 00	.....
.....	Bucks*.....	43 64	361,804	.....	.....	.....	15,792,193 00	36 00	.....	13,024,941 00	.....
.....	Chester*.....	55 05	412,537	.....	.....	.....	23,943,383 00	37 00	.....	13,263,869 00	.....
1729	Lancaster.....	42 83	508,142	.....	\$22,710,280 00	\$1,233,103 00	28,552,579 00	48 00	.....	24,390,816 00	.....
1749	York.....	17 70	480,081	.....	21,768,295 00	6,785,284 00	8,500,079 00	30 00	.....	14,401,830 00	.....
1749-50,	Cumberland.....	23 25	498,180	.....	11,584,059 00	.....	11,584,059 00	31 00	.....	15,443,580 00	.....
1752	Berks.....	32 28	520,000	.....	16,790,000 00	.....	16,790,000 00	35 00	.....	18,200,000 00	.....
1752	Northampton.....	18 71	369,694	.....	.....	.....	6,919,034 00	30 00	.....	11,090,820 00	.....
1771	Redford.....	1 27	816,181	.....	.....	.....	1,034,907 00	5 00	.....	4,080,905 00	.....
1772	Northumberland.....	9 45	174,393	40,074	1,647,398 00	.....	1,647,398 00	12 00	.....	2,092,716 00	.....
1773	Westmoreland.....	4 51	508,263	50,739	3,168,447 00	.....	3,016,037 00	7 50	.....	3,811,972 00	.....
1781	Washington.....	6 50	487,458	.....	1,118,792 00	.....	4,287,269 00	8 00	.....	3,899,664 00	.....
1783	Payette.....	6 41	399,445	.....	2,520,497 00	149,927 00	2,711,371 60	7 50	.....	2,995,837 00	.....
1784	Franklin.....	29 28	383,366	.....	.....	.....	11,206,642 00	33 00	.....	11,500,980 00	.....
1784	Montgomery.....	39 48	283,213	.....	8,632,332 00	603,892 00	9,239,234 00	33 00	.....	9,346,029 00	.....
1785	Dauphin.....	42 22	229,137	.....	.....	.....	9,676,757 00	30 00	.....	6,873,910 00	.....
1785	Luzerne.....	1 75	850,431	.....	1,465,417 00	.....	1,465,417 00	7 00	.....	5,953,017 00	.....
1787	Huntingdon.....	5 50	581,238	.....	3,193,809 00	367,737 00	3,564,546 00	10 00	.....	5,812,380 00	.....
1788	Allegheny.....	6 00	402,545	.....	2,364,080 00	353,745 00	2,718,825 00	7 50	.....	2,817,815 00	.....
1789	Mifflin.....	10 38	350,425	.....	3,265,438 00	374,156 00	3,639,594 00	12 00	.....	4,205,100 00	.....
1789	Delaware.....	51 00	105,037	.....	836,492 00	.....	7,028,160 00	50 00	.....	3,251,850 00	.....
1795	Lycoming.....	75 1	1,107,023	938,761	1,851,400 00	176,512 00	1,013,036 00	3 00	.....	3,221,069 00	.....
1795	Somerset.....	2 82	655,439	.....	.....	.....	1,851,400 00	5 00	.....	3,277,195 00	.....
1796	Greene.....	4 24	261,372	.....	1,110,511 00	.....	1,110,511 00	5 50	.....	1,437,546 00	.....
1798	Wayne.....	1 11	359,846	.....	.....	.....	528,788 00	3 00	.....	1,079,538 00	.....
1800	Adams.....	25 00	273,629	.....	6,840,725 00	1,629,638 00	8,470,393 00	25 00	.....	6,840,725 00	.....

* At commencement of the Provincial Government.

† This sum includes lots and houses in the Northern Liberties, Southwark, German-

town, &c., &c.

DATE.	COUNTIES.	Average value per acre.....	Total quantity acres in each county ...	Unseated land included in the preceding column....	Amount of assessed value of lands.....	Assessed value personal property	Amount of the assessed value of real and personal property in the city and several counties.....	Adjusted average price per acre by the Committee of Ways and Means..	Amount of the value of the real estate in the city and the several counties, as adjusted by the Committee of Ways and Means.....
1.	2.	10.	11.	12.	13.	14.	15.	16.	17.
1800....	Centre.....	\$3 77	753,983	505,381	.....	.....	\$2,713,885 00	310 00	\$7,539,839 00
1800....	Beaver.....	3 15	233,561	.....	\$1,051,829 00	\$195,370 00	1,247,199 00	5 00	1,067,805 00
1800....	Butler.....	1 76	333,060	.....	736,905 00	157,703 00	911,608 00	3 00	1,290,180 00
1800....	Mercer.....	1 68	465,052	.....	.....	.....	809,542 00	4 25	2,092,644 00
1800....	Crawford ..	1 73	524,613	.....	856,072 00	81,257 00	937,339 00	3 00	1,573,839 00
1800....	Erie.....	1 72	433,986	.....	739,155 00	62,000 00	801,155 00	3 00	1,301,940 00
1800....	Warren.....	70 21	435,307	.....	.....	.....	310,284 00	1 75	761,787 00
1800....	Venango....	65	600,810	.....	.....	.....	394,418 00	2 50	1,502,025 00
1800....	Armstrong ..	1 14	540,556	229,935	.....	.....	473,266 00	3 00	1,621,668 00
1803....	Indiana....	.....	440,000	.....	.....	.....	1,320,000 00	3 00	1,320,000 00
1804....	Jefferson ..	.....	650,000	.....	.....	.....	975,000 00	1 50	375,000 00
1804....	M'Kean....	52	739,165	730,328	.....	.....	382,810 00	1 50	1,035,492 00
1804....	Clearfield..	71 1	831,808	.....	.....	.....	595,538 00	2 00	1,663,616 00
1804....	Potter.....	.....	575,000	.....	.....	.....	1,006,250 00	1 75	1,006,250 00
1804....	Tioga.....	.....	630,000	.....	.....	.....	1,417,500 00	2 25	1,417,500 00
1804....	Cambria....	94	485,360	.....	.....	.....	438,361 00	2 00	970,720 00
1810....	Bradford ..	2 12	609,620	.....	1,292,983 00	.....	1,292,983 00	3 00	1,828,860 00
1810....	Susquehanna.....	1 67 1	453,520	.....	746,366 00	12,883 00	739,249 00	3 00	1,360,560 00
1811....	Schuykill....	.....	450,000	.....	.....	.....	4,050,000 00	9 00	4,050,000 00
1812....	Lehigh.....	39 16	185,980	.....	7,288,280 00	.....	7,288,280 00	40 00	7,439,200 00
1813....	Lebanon ..	53 89	143,314	.....	7,863,623 00	.....	7,863,623 00	52 00	7,453,888 00
1813....	Union.....	17 32	215,507	.....	3,732,658 00	.....	3,732,658 00	20 00	4,310,140 00
1813....	Columbia ..	12 94	272,099	.....	.....	.....	3,519,736 00	15 00	4,081,485 00
1814....	Pike.....	54	626,061	.....	331,738 00	.....	331,733 00	7 5	469,552 00
.....	.....	.....	23,278,806	.....	.....	.....	.....	.....	391,842,830 00

Signed on behalf of the Committee of Ways and Means,

HARRISBURG, March 4, 1815.

JACOB BUCHER, Chairman.

RECORD of the valuation of the several counties of the Commonwealth of Pennsylvania, as fixed by the Board of Revenue Commissioners, A. D. 1875, to be and remain as the valuation of the property of the said counties, until the next meeting of the Board, as is provided by the acts of Assembly of the 29th day of April A. D. 1844, and 13th day of April, 1864, creating said Board.

COUNTIES.	Amount of property subject to a tax of 3 mills on the dollar....	Amount of property subject to a tax of 1 per cent. on the dollar....	Amount of tax on watches.....	Amount of State tax.....	Amount of State tax, less commission.....
Adams.....	\$558,511	\$92,856	8135	82,730 00	81,576 12
Allegheny.....	15,000,000	160,000	15,000	61,600 00	57,934 10
Armstrong.....	400,147	22,229	182	1,604 73	1,569 26
Beaver.....	700,000	24,000	447	2,787 00	2,621 18
Bedford.....	600,000	20,000	50	2,050 00	1,928 03
Berks.....	4,500,000	272,182	600	16,821 82	15,820 93
Blair.....	721,765	20,875	410	2,784 04	2,618 40
Bradford.....	900,000	24,000	168	8,108 00	2,923 68
Bucks.....	3,200,000	100,000	360	10,960 00	10,307 88
Butler.....	1,000,000	42,000	100	3,520 00	3,310 56
Cambria.....	600,000	18,000	150	2,180 00	2,003 27
Cameron.....	97,000	50	30	326 00	306 61
Carbon.....	700,000	10,000	400	2,600 00	2,445 30
Centre.....	1,180,826	48,663	140	4,169 11	3,921 06
Chester.....	7,200,000	250,000	1,150	25,250 00	23,747 63
Clarion.....	450,000	21,746	135	1,702 48	1,601 17
Clearfield.....	600,000	20,000	190	2,190 00	2,059 70
Clinton.....	600,000	18,000	215	2,195 00	2,064 40
Columbia.....	67,720	34,410	105	652 26	613 46
Crawford.....	700,000	25,000	650	3,000 00	2,821 50
Cumberland.....	1,709,000	70,000	400	6,200 00	5,831 10
Dauphin.....	2,900,000	190,000	400	10,100 00	9,499 05
Delaware.....	2,568,226	83,898	569	9,052 65	8,514 02
Elk.....	76,672	455	104	338 56	318 43
Frie.....	3,200,000	60,000	500	10,700 00	10,063 35
Fayette.....	1,400,000	35,000	300	4,850 00	4,561 43
Forest.....	44,650	.....	28	161 95	152 33
Franklin.....	1,500,000	140,000	244	6,144 00	5,778 44
Fulton.....	114,934	6,260	28	435 31	409 42
Greene.....	700,000	20,000	79	2,379 00	2,237 45
Huntingdon.....	600,000	30,000	210	2,310 00	2,172 56
Indiana.....	1,050,000	30,000	300	3,750 00	3,526 88
Jefferson.....	400,000	13,000	70	1,400 00	1,316 70
Juniata.....	420,000	20,000	50	1,510 00	1,420 16
Lancaster.....	10,890,456	429,986	1,184	38,155 23	35,885 00
Lawrence.....	750,000	35,000	300	2,900 00	2,727 45
Lebanon.....	1,628,629	77,765	110	5,767 54	5,424 38
Lehigh.....	3,550,000	200,000	300	12,950 00	12,179 48
Luzerne.....	5,550,000	200,000	1,000	19,650 00	18,480 83
Lycoming.....	1,250,000	30,000	250	4,300 00	4,044 15
M'Kean.....	150,000	.....	50	500 00	470 25
Mercer.....	1,150,000	40,000	532	4,382 00	4,121 28
Mifflin.....	361,161	21,975	158	1,461 23	1,374 29
Monroe.....	400,000	8,000	40	1,320 00	1,241 46
Montgomery.....	5,397,291	220,257	1,337	19,731 44	18,557 43
Montour.....	350,000	15,000	60	1,260 00	1,185 03
Northampton.....	2,695,636	241,500	750	11,251 90	10,582 42
Northumberland.....	1,200,000	50,000	200	4,300 00	4,044 15
Perry.....	622,558	43,626	90	2,393 93	2,251 50
Philadelphia.....	47,732,578	688,915	30,000	180,066 88	169,352 91
Pike.....	200,000	1,000	15	625 00	587 81

VALUATION OF THE COUNTIES OF PENNSYLVANIA—*Continued.*

COUNTIES.	Amount of prop-erty subject to a tax of 3 mills on the dollar....	Amount of prop-erty subject to a tax of 1 per ct. on the dollar....	Amount of tax on watches....	Amount of State tax.....	Amount of State tax, less com-mission.....
Potter.....	\$180,000	.....	\$13	\$553 00	\$520 10
Schuylkill.....	2,750,000	886,000	709	9,810 00	9,226 31
Snyder.....	275,579	31,073	45	1,212 46	1,140 53
Somerset.....	790,172	42,184	118	2,910 35	2,737 20
Sullivan.....	80,000	900	10	259 00	243 59
Susquehanna.....	700,000	5,000	100	2,250 00	2,116 13
Tioga.....	559,867	9,752	139	1,916 12	1,802 12
Union.....	500,000	35,000	150	2,000 00	1,881 00
Venango.....	627,989	21,151	343	2,438 47	2,293 39
Warren.....	649,175	5,690	294	2,298 41	2,161 66
Washington.....	1,750,000	67,000	380	6,300 00	5,925 15
Wayne.....	288,732	2,265	96	984 84	926 25
Westmoreland....	1,400,000	85,000	378	5,428 00	5,105 04
Wyoming.....	264,645	2,265	92	908 58	854 53
York.....	3,400,000	246,000	352	13,012 00	12,237 79
	154,542,889	4,775,928	63,425	574,817 36	540,616 04

We the undersigned, Revenue Commissioners, appointed in pursuance of an act of Assembly of the Commonwealth of Pennsylvania, entitled "An Act to reduce the State debt and to incorporate the Pennsylvania canal and railroad company," passed the 29th day of April A. D. 1844, duly organized according to the provisions of said act, do hereby certify that we have ascertained and determined the fair and just valuation of the city of Philadelphia and the several counties of this Commonwealth made taxable by law as is particularly set forth in the foregoing tabular statement, to be and remain as the minimum valuation of said property, until the next meeting of the Board of Revenue Commissioners, as in the said act provided for.

(Signed)

R. W. MACKEY,

State Treasurer.

HARRISON ALLEN,

Auditor General.

M. S. QUAY,

Secretary of the Commonwealth.

Revenue Commissioners.

HARRISBURG, March 12, 1875.

NUMBER OF TAXABLES IN EACH COUNTY, COUNTY VALUATIONS AND ASSESSMENTS, INDEBTEDNESS, &c

COUNTIES.	I. Number of taxables returned for 1875.....	II. Total assessed value of real and personal estate, 1873.....	III. Total assessed value of real and personal estate, 1874.....	IV. Assessed value of real estate as per returns, 1875.....	V. Assessed value of personal estate as per returns, 1875.....	VI. Total assessed value of real and personal estate, 1875.....	VII. Exemptions so far as shown by county commissioners' books, '75.	VIII. Amount of indebtedness as per returns, 1875.....	IX. County taxes assessed as per returns, 1875.....
Adams.....	8,829	\$5,797,395	\$11,368,043	\$10,203,283	\$1,076,398	\$11,870,686	.....	.....	\$34,666 33
Allegheny.....	81,927	44,315,087	282,711,269	278,803,678	34,706,357	513,510,035	.....	\$2,254,448	448,218 89
Armstrong.....	11,630	13,748,113	10,102,875	9,920,373	997,057	10,917,430	.....	138,121	80,169 21
Beaver.....	8,587	4,905,032	4,949,466	4,656,546	1,365,680	6,032,226	.....	73,000	56,563 29
Bedford.....	8,631	3,044,783	4,444,221	3,812,370	645,938	4,458,328	.....	40,000	46,131 65
Berks.....	27,981	20,657,873	21,394,010	19,780,931	6,052,940	25,833,871	.....	113,000	118,077 97
Blair.....	10,583	6,487,817	7,924,435	6,910,850	940,851	7,851,701	.....	13,100	54,696 21
Bradford.....	14,427	7,628,770	7,801,688	6,833,624	603,300	7,436,924	.....	.....	31,023 88
Bucks.....	17,692	18,494,101	21,398,656	16,541,833	5,441,892	21,983,725	.....	.....	116,310 67
Butler.....	13,434	6,894,136	7,988,537	694,506	448,506	8,096,090	\$01,850	24,900	55,370 41
Cambria.....	8,335	5,164,084	4,943,636	4,271,709	479,201	4,751,910	.....	7,677	36,827 71
Cameron.....	1,397	833,418	1,006,169	954,954	1,057,076	1,057,076	73,394	.....	9,677 01
Carbon.....	7,672	2,720,887	4,339,920	2,935,285	\$900,000	3,895,285	.....	29,670	39,800 00
Centre.....	9,146	4,412,546	11,823,392	10,407,731	1,124,739	11,532,470	.....	.....	34,397 41
Chester.....	20,030	62,310,273	58,104,751	52,277,918	10,243,663	62,521,581	993,200	498,898	142,481 81
Clarion.....	8,188	2,631,130	3,645,033	3,337,544	440,279	3,777,823	.....	70,000	48,420 60
Clearfield.....	7,817	6,992,246	8,420,051	8,100,792	974,862	9,075,504	300,190	75,000	43,399 87
Clinton.....	6,438	3,650,065	5,423,063	3,201,661	534,841	3,736,505	.....	80,000	37,334 95
Columbia.....	7,256	5,020,837	5,709,501	4,769,089	928,392	5,697,481	.....	.....	28,473 39
Crawford.....	20,801	8,687,841	23,102,218	21,755,704	1,404,263	23,159,967	.....	339,876	137,887 68
Cumberland.....	12,854	16,432,646	12,674,171	11,791,267	2,837,419	14,628,686	.....	.....	68,875 99
Dauphin.....	16,926	15,749,405	16,074,079	17,285,193	2,464,865	19,750,058	1,816,820	213,776	172,253 89
Delaware.....	10,374	32,752,000	37,702,458	32,843,301	5,927,854	38,770,855	.....	484,328	146,058 20
Elk.....	2,550	1,776,933	2,372,239	2,120,480	131,356	2,251,836	.....	.....	18,828 40
Erie.....	18,653	33,816,581	40,784,579	37,580,505	2,731,044	40,311,549	.....	13,512	127,700 69

NUMBER OF TAXABLES IN EACH COUNTY, COUNTY VALUATIONS AND ASSESSMENTS, INDEBTEDNESS, &c.—Continued.

COUNTIES.	I. Number of taxables returned for 1875.....	II. Total assessed value of real and personal estate, 1874.....	III. Total assessed value of real and personal estate, 1874.....	IV. Assessed value of real estate as per returns, 1875.....	V. Assessed value of personal estate as per returns, 1875.....	VI. Total assessed value of real and personal estate, 1875.....	VII. Exemptions so far as shown by county commissioners' books, '75.	VIII. Amount of indebtedness as per returns, 1875.....	IX. County taxes assessed as per returns, 1875.....
Fayette.....	12,950	\$13,547,243	\$14,592,443	\$15,661,831	\$2,213,407	\$17,875,238	.....	\$7,988	\$50,603 44
Frost.....	31,335	7,744,713	1,608,255	1,425,501	1,101,705	1,527,206	.....	33,003	15,268 31
Franklin.....	12,338	13,599,823	14,184,556	12,484,820	1,682,061	14,166,881	.....	20,629	69,857 31
Fulton.....	2,665	983,247	1,117,763	829,594	162,836	992,430	.....	.....	8,775 71
Greene.....	7,632	8,493,198	7,223,393	6,528,575	492,086	7,020,661	.....	.....	33,013 24
Huntingdon.....	7,644	6,158,247	5,305,582	4,854,770	859,349	5,714,119	.....	.....	57,141 81
Indiana.....	10,358	3,820,225	8,399,700	9,939,166	1,125,655	11,064,751	.....	126,450	.....
Jefferson.....	6,930	2,415,782	2,440,588	2,287,510	378,822	2,666,332	.....	90,005	26,155 66
Junata.....	4,577	1,308,914	2,490,636	2,226,269	297,851	2,523,850	.....	50,000	299,964
Lancaster.....	34,974	42,559,496	103,028,120	89,370,746	13,768,851	104,139,597	.....	281,988	241,988 82
Lawrence.....	7,085	4,774,378	8,721,394	4,335,384	622,615	4,957,999	.....	158,373	50,801 35
Lebanon.....	8,998	11,781,114	12,107,691	9,892,155	2,007,861	11,899,996	.....	31,510	58,636 50
Lebanon.....	18,280	10,362,649	39,744,909	36,090,541	6,896,885	42,897,226	.....	254,736	121,541 15
Luzerne.....	54,269	19,971,927	26,894,111	20,511,073	3,840,658	24,351,741	.....	109,300	194,901 03
Lycoming.....	12,600	6,548,855	6,791,885	5,910,716	1,035,360	6,946,076	.....	113,934	67,463 14
McKean.....	32,500	6,680,675	1,411,225	\$1,500,000	250,000	1,750,000	.....	2,791	66,169 57
Merced.....	15,646	20,915,307	23,397,398	22,052,748	24,134,733	24,187,511	.....	.....	.....
Mifflin.....	4,800	3,600,000	3,380,000	\$3,500,000	709,009	4,209,009	.....	30,000	12,125 03
Monroe.....	4,062	1,445,655	1,499,522	1,414,595	131,545	1,546,140	.....	.....	.....
Montgomery.....	21,530	36,732,863	38,134,631	35,447,569	7,796,790	43,244,359	\$1,502,077	149,975	154,338 33
Montour.....	3,406	2,336,931	2,663,706	2,470,489	292,314	2,762,813	135,500	12,700	18,316 51
Northampton.....	17,295	13,663,960	48,239,330	45,212,673	8,835,402	54,048,075	.....	8,008	77,636 84
Northampton.....	17,456	7,016,529	7,244,507	6,916,294	433,904	7,350,198	.....	.....	36,751 04
Perry.....	8,198	3,510,000	7,118,217	6,026,647	992,447	7,020,094	.....	69,156	28,022 72
Philadelphia.....	172,155	511,024,082	586,163,332	\$565,819,095	48,000,009	613,819,095	.....	60,668,982	11,956,672 79

Pike	2,697	963,500	898,190	862,189	169,174	1,031,353	.....	40,063	20,438 76
Potter	2,992	1,001,908	1,217,500	1,100,114	112,241	1,212,355	.....	24,031	12,124 41
Schuykill	27,418	19,595,323	32,393,414	*31,000,000	3,000,000	37,000,000	1,353,940	32,925	189,811 80
Snyder	4,960	3,222,144	3,642,714	3,006,421	527,032	3,538,473	.....	.....	12,595 15
Somerset	7,447	4,049,988	4,236,746	3,488,951	876,021	4,364,972	151,060	.....	24,641 75
Sullivan	1,915	594,753	789,355	604,833	91,156	696,039	.....	2,550	6,916 18
Susquehanna	9,679	3,562,800	3,471,258	3,197,762	457,174	3,654,936	.....	15,000	33,549 35
Tioga	11,338	6,474,689	7,097,110	6,584,622	572,239	7,156,861	.....	35,315	50,255 14
Union	5,056	4,956,000	4,439,095	4,074,344	743,810	4,818,154	.....	2,800	16,304 98
Venango	8,249	8,565,703	16,359,262	14,870,829	1,291,110	16,161,939	831,000	263,500	72,728 72
Warren	6,756	2,158,080	10,421,682	9,433,466	807,610	10,241,076	.....	.....	19,899 94
Washington	13,353	15,841,367	15,395,655	14,090,161	1,573,866	15,634,027	.....	109,000	117,828 35
Wayne	8,891	1,597,730	1,793,702	1,489,259	293,332	1,784,591	.....	.....	17,845 91
Westmoreland	18,464	8,782,665	23,325,010	26,400,872	2,688,806	29,039,678	.....	10,000	81,205 67
Wyoming	3,454	1,475,985	4,178,550	3,584,290	296,232	3,880,512	.....	6,100	20,186 21
York	18,347	12,792,033	44,557,799	39,081,540	5,569,807	45,551,407	.....	227,509	135,296 22
978,602	1,087,793,844	1,760,765,415	1,637,423,716	209,444,003	1,836,870,722	.....	67,492,049	.....	16,333,166 33

*Estimated.

NOTE.—The amounts of county taxes assessed in the counties of Juniata, Indiana, McKean and Mifflin have not been reported.

REVENUE OF THE COMMONWEALTH OF PENNSYLVANIA.

SUMMARY OF THE RECEIPTS *at the State Treasury from the 1st day of December, 1874, to the 30th day of November, 1875, both days inclusive.*

1. Lands.....	\$14,641 25
2. Auction commissions.....	16,494 34
3. Notary public commissions.....	10,200 00
4. Tax on bank stock.....	285,671 92
5. Tax on corporation stocks.....	2,135,587 45
6. Tax on personal property.....	551,339 76
7. Tax on loans.....	176,453 61
8. Tax on net earnings or income.....	65,050 28
9. Tax on gross receipts.....	124,214 37
10. Tax on logs.....	1,535 34
11. Tax on tonnage.....	21,513 47
12. Tax on coal companies.....	521,729 47
13. Commutation of tonnage tax.....	460,000 00
14. Tax on writs, wills, deeds, &c.....	152,133 19
15. Tax on certain offices.....	14,993 32
16. Collateral inheritance tax.....	443,753 97
17. Tavern licenses.....	423,763 97
18. Retailers' licenses.....	422,602 91
19. Theatre, circus, &c., licenses.....	6,425 00
20. Billard room, bowling saloon, &c., licenses.....	12,717 46
21. Eating house, beer house and restaurant licenses.....	46,410 83
22. Peddlers' licenses.....	2,932 17
23. Brokers' licenses.....	16,371 56
24. Patent medicine licenses.....	6,988 30
25. Distillery and brewery licenses.....	7,679 59
26. Millers' licenses.....	1,189 41
27. Foreign insurance companies.....	156,460 23
28. Bonus on charters.....	46,048 04
29. Pamphlet laws.....	953 45
30. Escheats.....	2,529 17
31. Annuity for right of way.....	10,000 00
32. Refunded cash.....	2,086 45
33. Fines and penalties.....	24 00
34. Fees of the public offices.....	23,549 91
35. Sale of public property.....	1,611 60
36. Allegheny Valley railroad company, interest on bonds.....	175,000 00

37. Allegheny Valley railroad bonds re- deemed.....	\$100,000 00	
38. Pennsylvania Archives.....	170 95	
39. United States government.....	2,865 61	
40. Accrued interest.....	16,306 67	
41. Cases of conscience.....	100 00	
	<hr/>	\$6,480,099 02
Balance in the Treasury, Nov. 30, 1874.....		1,054,551 65
		<hr/>
		7,534,650 67

EXPENDITURES OF THE COMMONWEALTH OF PENNSYLVANIA.

SUMMARY OF THE PAYMENTS *at the State Treasury from the 1st day of December, 1874, to the 30th day of November, 1875, both days inclusive.*

1. Expenses of the government.....	\$1,192,073 88	
2. Constitutional Convention.....	26,965 73	
3. Susquehanna Depot riots.....	2,992 80	
4. Militia expenses.....	102,945 44	
5. Military expenses, per act of April 16, 1862.....	2,079 07	
6. Military expenses, per act of April 22, 1863.....	451 32	
7. Pensions and gratuities.....	39,661 66	
8. Charitable institutions.....	482,466 10	
9. Centennial exposition.....	385,165 51	
10. Soldiers' Orphan schools.....	406,063 89	
11. Common schools.....	754,797 23	
12. Commissioners of the Sinking Fund, viz:		
Loans, &c., redeemed..	\$1,362,497 63	
Other payments.....	8,197 16	
	<hr/>	1,370,694 79
13. Interest on loans.....	1,402,201 48	
14. Damages and old claims.....	2,395 00	
15. Mechanics' High School of Pennsylv- ania.....	483 00	
16. Harbor Master, Philadelphia.....	2,083 34	
17. Port Warden, Philadelphia.....	2,916 63	
18. Inspectors of coal mines.....	23,931 52	
19. State Library.....	7,400 00	
20. County Surveyors.....	1,845 00	
21. Amendments to the Constitution.....	759 00	
22. Public buildings and grounds.....	99,439 64	

23. Houses of Refuge.....	\$35,000 00	
24. Penitentiaries.....	53,705 00	
25. Board of Pardons.....	2,098 33	
26. Geological Survey.....	47,000 00	
27. Board of Public Charities.....	8,150 00	
28. Pennsylvania State Agricultural Society.....	2,000 00	
29. Advertising for proposals.....	12,047 16	
30. Escheats.....	2,156 09	
31. Mercantile appraisers.....	2,284 68	
32. Assessors of bank stocks.....	15,521 15	
33. Publishing New Constitution.....	1,127 25	
34. Stationery, fuel, &c.	7,789 12	
35. Counsel fees and commissions.....	1,300 00	
36. Revenue Commissioners.....	1,800 00	
37. Special commissions.....	21,062 70	
38. Vienna Commissioners.....	6,000 00	
39. Miscellaneous.....	12,589 89	
		\$6,541,443 40
Balance in Treasury, November 30, 1875.....		993,207 27
		<u>7,534,650 67</u>

RECAPITULATION OF MONTHLY RECEIPTS AND EXPENDITURES.

RECEIPTS.		EXPENDITURES.	
December, 1874....	\$272,434 91	December, 1874....	\$402,779 42
January .. 1875....	1,154,873 05	January .. 1875....	919,268 80
February...do.....	542,159 26	February .. do.....	277,684 28
March.....do.....	410,736 34	March.....do.....	322,434 76
April.....do.....	400,073 53	April.....do.....	485,254 30
May.....do.....	575,394 20	May.....do.....	602,854 22
June.....do.....	321,460 98	June.....do.....	383,132 92
July.....do.....	969,315 27	July.....do.....	1,271,786 48
August ....do.....	696,099 86	August ....do.....	542,097 17
September, do.....	275,418 91	September, do.....	445,752 70
October....do.....	720,438 50	October....do.....	312,851 87
November..do.....	141,694 21	November..do.....	575,546 48
	<u>6,480,099 02</u>		<u>6,541,443 40</u>
Balance in Treasury		Balance in Treasury	
Nov. 30, 1874....	1,054,551 65	Nov. 30, 1875....	993,207 27
	<u>7,534,650 67</u>		<u>7,534,650 67</u>

The following table will show the receipts of the State Treasury for the past ten years, as per statements of the several Auditors General :

November 30, 1866.....	\$5,162,594 19
November 30, 1867.....	5,423,330 07
November 30, 1868.....	5,216,049 55
November 30, 1869.....	5,241,711 28
November 30, 1870.....	6,336,603 24
November 30, 1871.....	7,197,945 62
November 30, 1872.....	7,148,637 44
November 30, 1873.....	7,076,723 20
November 30, 1874.....	5,871,968 27
November 30, 1875.....	6,480,099 02
Total amount.....	<u>61,155,661 88</u>

STATEMENT OF THE COMMISSIONERS OF THE SINKING FUND.

OFFICE OF THE COMMISSIONERS OF THE SINKING FUND, }
 TREASURY DEPARTMENT OF PENNSYLVANIA, }
 HARRISBURG, *January 3, 1876.* }

Balance in the sinking fund, December 31, 1875.....	\$1,225,905 65
Applicable to the payment of over due loans, relief notes and interest certificates.....	223,344 12
	<u>1,002,561 53</u>

Amount of registered loans, act of February 2, 1867, on which interest ceased July 31, 1873, and payable on de- mand.....	1,350 00
Amount of six per cent. loan, act of February 2, 1867, on which interest ceases December 1, 1875, and payable on demand.....	61,000 00
Amount of six per cent. loan, act of May 27, 1871, on which interest ceases December 1, 1875, and payable on demand.....	6,657 95
Total.....	<u>69,007 95</u>

LOANS REDEEMED DURING MONTH OF DECEMBER, 1875.

Six per cent. loan, act of February 2, 1867.....	\$33,900 00
Six per cent. loan, act of May 27, 1871.....	3,162 29
Total.....	<u>37,062 29</u>

BUREAU OF STATISTICS.

DEBT BEARING COIN INTEREST.

Four and a half per cent. loans.....	\$87,000 00
Five per cent. loans.....	3,935,500 00
Six per cent. loans.....	400,000 00
Total.....	<u>4,422,500 00</u>

DEBT BEARING INTEREST IN UNITED STATES CURRENCY.

Five per cent. bonds.....	\$814,350 00
Six per cent bonds.....	17,724,750 00
Total.....	<u>18,539,100 00</u>

DEBT ON WHICH INTEREST HAS BEEN STOPPED.

Five per cent. bonds.....	\$116,059 54
Six per cent. bonds.....	11,100 58
Six per cent. Chambersburg certificates, outstanding and unclaimed.....	6,657 95
Total.....	<u>133,818 07</u>

DEBT BEARING NO INTEREST.

Loan relief, act May 4, 1841.....	\$96,184 00
Interest certificates, unclaimed.....	4,448 38
Domestic creditors.....	25 00
Total.....	<u>100,657 38</u>

RECAPITULATION OF THE PUBLIC DEBT.

Debt bearing coin interest.....	\$4,422,500 00
Debt bearing interest in United States currency.....	18,539,100 00
Debt on which interest has been stopped.....	133,818 07
Debt bearing no interest.....	100,657 38
Total debt December 31, 1875.....	<u>23,196,075 45</u>

M. S. QUAY,

Secretary of the Commonwealth.

R. W. MACKEY,

State Treasurer.

J. F. TEMPLE,

Auditor General.

Affirmed, sworn and subscribed before me this 6th day of January, 1876.

JOHN B. LINN,

Deputy Secretary of the Commonwealth.

STATEMENT OF THE GENERAL REVENUE FUND, DECEMBER 31,
1875.

Cash in fund.....	\$140 10
Balance in general revenue fund, December 31, 1875.....	140 10

State of Pennsylvania:

Personally appeared before me, Justus F. Temple, Auditor General, R. W. Mackey, State Treasurer, who being duly sworn according to law, doth depose and say that the foregoing statement is true to the best of his knowledge and belief.

R. W. MACKEY,

State Treasurer.

Sworn and subscribed to before me this 6th day of January, 1876.

J. F. TEMPLE,

Auditor General.

INSURANCE.

During the year 1874, the citizens of Pennsylvania paid in premiums for fire, marine, life and accident insurance, a sum of money aggregating \$16,-198,875 73, as shown by the following summary, taken from the report of Mr. J. M. Forster, Insurance Commissioner of the State of Pennsylvania:

Premium receipts of Pennsylvania life companies from business in the State	\$1,525,411 14
Premium receipts of foreign life companies from business in Pennsylvania	5,500,688 90
Total premium receipts of life companies in Pennsylvania,	7,026,100 04
Premium receipts of Pennsylvania stock, fire and marine companies in the State..	\$4,302,975 88
Receipts of Pennsylvania mutual companies from policies and assessments in the State,	1,427,248 10
Total receipts of Pennsylvania companies in the State...	5,730,223 98
Premium receipts of foreign fire and marine companies....	3,442,551 71
Total paid for insurance in Pennsylvania in 1874.	16,198,875 73

The business of the year in the State of Pennsylvania, is summed up as follows:

Premiums received by stock companies	\$7,745,527 59
Premiums and assessments by mutual companies	1,427,248 10
Total of Pennsylvania business.....	9,172,775 69
Losses paid by stock companies.....	\$2,984,581 63
Losses paid by mutual companies	864,723 37
Total losses paid in Pennsylvania.....	3,849,305 00

Ratio of losses paid to income from premiums and assessments on entire Pennsylvania business, 41.96 per cent.

Premiums received by Pennsylvania life companies.....	\$1,525,411 14
Premiums received by other State life companies.....	5,500,688 90
Total of Pennsylvania business.....	7,026,100 04

Losses paid by Pennsylvania life companies.....	\$545,889 00
Losses paid by other State life companies.....	2,262,520 00
Total losses paid in Pennsylvania.....	<u>2,808,409 00</u>

Ratio of losses paid to income from premiums on entire Pennsylvania business, 39.96 per cent.

BUSINESS OF PENNSYLVANIA COMPANIES.

The business of Pennsylvania joint-stock insurance companies, during the year 1874, is represented by the following figures:

Income from fire premiums	\$8,920,499 86
Income from marine and inland premiums	2,811,201 65

Total premium income.....	11,731,701 51
Paid for fire losses.....	\$4,421,836 78
Paid for marine and inland losses.....	1,853,357 18
Paid for commissions	1,619,192 03
Paid for salaries.....	968,329 80
Paid for taxes.....	297,377 66
Paid for miscellaneous	401,610 75
	<u>9,561,704 20</u>

Excess of premium income over expenses.....	2,169,997 31
Income from investments.....	\$1,390,644 67
Income from rents.....	43,074 94
Income from miscellaneous sources.....	281,428 20
	<u>1,715,147 81</u>

Total net income.....	3,885,145 12
Deduct dividends.....	1,097,683 83

Excess of income over all expenditures	<u>2,787,461 29</u>
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Ratio of losses paid to premium income.....	53.5
Ratio of expenses to premium income.....	28.0
Ratio of profit to premium income.....	<u>18.5</u>

MUTUAL FIRE INSURANCE COMPANIES.

The business of the mutual insurance companies for 1874 shows the following cash results:

Receipts from policies.....	\$1,289,182 65
Receipts from assessments.....	682,333 17
Receipts from miscellaneous sources.....	322,306 37

Total cash receipts.	<u>2,293,827 19</u>
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Paid for losses.....	\$1,214,415 22
Cash returned to members.....	83,723 85
Paid for salaries and expenses.....	581,509 17
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Total cash disbursements.....	1,879,648 24
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Ratio of expenses to income from policies and assessments, 29.5 per cent.; ratio of losses paid to income from policies and assessments, 61.6 per cent.

PENNSYLVANIA LIFE INSURANCE COMPANIES.

The following statement shows the income and expenditures of life insurance companies of this State for the year ending December 31, 1874:

INCOME.

Premiums—cash.....	\$2,511,462 96
Premiums—note.....	316,129 66
Interest and dividends.....	750,135 01
Rents.....	4,185 51
Received from all other sources.....	112,996 94
<hr/>	
Total income.....	3,694,910 08
<hr/>	

EXPENDITURES.

Losses and claims—cash.....	\$1,120,186 35
Losses and claims—note.....	14,136 52
Lapsed, surrendered and purchased policies—cash.....	124,019 59
Lapsed, surrendered and purchased policies—note.....	86,580 86
Dividends to policyholders—cash.....	432,447 52
Dividends to policyholders—note.....	144,776 93
Dividends to stockholders.....	99,816 10
Commissions.....	206,310 64
Salaries, medical fees and other charges of employees.....	208,580 04
All other expenditures.....	242,902 02
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Total expenditures.....	2,679,756 57
<hr/>	

Total excess of income over expenditures.....	\$1,015,153 51
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CO-OPERATIVE LIFE INSURANCE COMPANIES.

Condition and business of Pennsylvania Co-operative Life Insurance Companies for 1874 :

Cash assets.....	\$104,071 81
Cash liabilities.....	27,440 39
Cash income.....	185,898 87
Cash expenditures..	168,354 99
Number of classes.....	18
Number of members at beginning of year.....	10,545
Number of members at close of year.....	12,684
Number of members died during year.....	105
Amount paid to representatives of deceased members....	\$123,863 61
Number of policies forfeited.....	1,124
Amount of money forfeited to companies.....	\$6,098 70
Number of co-operative companies in the State.....	10

BUSINESS OF 1874.

SUMMARY of risks written, premiums and assessments received and losses paid by fire and inland and marine insurance companies lawfully doing business in Pennsylvania during the year 1874.

	RISKS WRITTEN.		Premiums received,	Losses paid.....	Ratio of losses paid to premiums rec'd,
	Fire.....	Marine.....			
Pennsylvania joint stock companies.....	\$722,784,335 00	\$238,173,059 00	\$11,731,701 51	\$6,275,193 96	53.49
Companies of other States.....	3,818,517,229 00	362,031,803 00	44,128,595 43	20,662,176 03	46.82
Foreign companies, United States branches.....	1,035,849,014 00	24,351,795 00	10,604,102 34	4,397,269 69	41.46
Total.....	5,577,114,578 00	624,556,657 00	66,464,399 28	31,334,639 68	47.14
	RECEIPTS.		From policies,	Losses paid.....	Ratio of losses to receipts from assessments and policies,
	Fire risks.....	From assess'ts,			
Pennsylvania mutual companies.....	\$136,180,102 00	\$682,338 17	\$1,289,182 65	\$1,214,415 65	61.6

RISKS IN FORCE DECEMBER 31, 1874.

Pennsylvania joint-stock fire companies	\$948,025,734
Pennsylvania Mutual fire companies.....	473,871,734
Other State joint-stock fire companies.....	3,408,484,634
American branches foreign fire companies.....	816,863,774

Total	5,647,245,876
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Pennsylvania joint-stock inland and marine companies..	\$23,546,037
Other State joint-stock marine and inland companies....	25,564,871
American branches foreign marine and inland companies,	495,522

Total	54,606,430
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SUMMARY of total business done in 1874 by Pennsylvania Life Insurance companies, and Life Insurance companies of other States :

	Policies in force Dec. 31, 1874.		Policies issued du- ring the year.		Premiums received during the year.	Losses and claims du- ring the year.
	No.	Amount.	No.	Amount.		
Penna. companies...	34,032	\$87,027,532	5,503	\$13,859,750	\$2,827,592 62	\$1,134,322 87
Com's of other States,	773,340	1,934,738,615	155,723	350,079,708	95,742,513 45	26,270,608 84
Total	807,372	2,021,766,147	161,226	363,939,458	98,570,106 07	27,404,931 71

CONDITION OF INSURANCE COMPANIES DOING BUSINESS IN PENNSYLVANIA.

JOINT-STOCK AND MUTUAL FIRE AND FIRE MARINE COMPANIES.

	Assets.	LIABILITIES.				Income.	Expenditures.
		Liabilities except paid up capital and net surplus.	Paid up capital.	Net surplus.	Total liabilities.		
Pennsylvania Joint-stock Fire and Fire Marine companies, Penn'a Mutual Fire companies.....	\$28,590,355 25	\$13,632,771 52	\$10,312,334 74	\$4,778,681 78	\$28,723,838 04	\$13,446,849 32	\$10,659,388 03
Other State Joint-stock Fire and Fire Marine companies, American branches Foreign Fire and Fire Marine companies.....	5,146,579 57	1,788,798 95	.....	.....	1,788,798 95	2,263,827 19	1,879,648 24
	79,501,131 51	26,855,837 02	39,431,210 00	13,267,285 33	79,554,332 35	48,298,749 51	38,834,069 61
	13,946,456 06	6,879,288 03	.....	.....	6,879,288 03	11,007,760 41	7,300,035 56
Totals.....	127,184,952 39	49,156,605 52	49,743,594 74	18,045,967 11	116,946,167 37	75,047,186 43	58,773,141 44

LIFE INSURANCE COMPANIES.

	Assets.	Liabilities except capital stock.	Surplus as regards policy holders.	Capital stock.	BALANCE AS REGARDS STOCKHOLDERS.		Income.	Expenditures.
					Deficiency.	Surplus.		
Pennsylvania Life Insurance companies.....	\$15,035,387 09	\$11,800,719 78	\$3,600,351 65	\$1,879,262 03	\$253,894 41	\$1,120,719 56	\$3,694,910 03	\$2,679,756 57
Life Insurance companies of other States.....	379,767,486 22	324,513,437 83	55,284,264 24	6,185,800 00	1,166,121 94	15,512,913 96	121,652,029 88	82,414,997 61
Totals.....	394,802,873 31	336,314,157 61	58,884,615 89	8,065,062 03	1,420,016 35	16,633,633 52	125,347,539 96	85,094,754 18

MINERAL STATISTICS AND LABOR.

SOCIAL CONDITION OF THE INDUSTRIAL CLASSES—WORK OF THE BUREAU, DEDUCTIONS AND SUGGESTIONS.

The Bureau of Industrial Statistics was organized by General William M'Candless, Secretary of Internal Affairs, May 4, 1875, by the appointment with the consent of the Governor, of W. Hayes Grier, of Columbia, Lancaster county, Chief of the Bureau, assigning John L. Sexton, Jr., of Fall Brook, Tioga county, R. H. Forster, of Bellefonte, Centre county, and D. W. Henderson, of Philadelphia, clerks in said Bureau. A great amount of preliminary work was necessary, in order to commence the collection of statistical information contemplated by the Constitution of 1873, and the act of May 11, 1874. By the inadvertence of the Legislature at the session of 1875, to make suitable appropriations for incidental expenses connected with the Department, it has labored under serious embarrassment, for want of a suitable contingent fund, to place it in communication with persons and corporations, from whom it expected to obtain its statistical information.

Notwithstanding this serious impediment, suitable blanks were prepared, embracing a series of questions, calculated to elicit facts and statistical information from the agricultural, manufacturing, mining, railroad and other industrial interests of the Commonwealth, and mailed to parties engaged in these several pursuits and occupations. The task of preparing schedules that would meet with the requirements of the law, and at the same time receive the co-operation of the parties from whom information was sought, required the utmost care and reflection. To the honor and credit of the business men of the Commonwealth, be it said, they have almost universally responded cheerfully to our enquiries, and I have the pleasure of submitting to the people of the Commonwealth in this report, a fund of very valuable and instructive statistics, which has been gathered and compiled in the short space of six months.

Section four of the act of May 11, 1874, among other things provides, that "the Department of Internal Affairs shall embrace a Bureau of Industrial Statistics, the business of which shall be to impartially inquire into the relations of capital and labor in their bearings upon the social, educational and industrial welfare of all classes of working people, and to offer practical suggestions for the improvement of the same."

To carry out the spirit and letter of this section of the law without any contingent fund, to say the least, has been marked by many difficulties.

In looking over the field of my labors I saw that in the anthracite coal regions of the State, inspectors of mines were appointed, whose especial care and duties were to exercise a watchful care and supervision over the collieries within their immediate districts, and that they had, from time to time, made reports concerning the condition of said collieries to the Senate and House of Representatives of the Commonwealth, and that the bituminous and semi-bituminous coal regions and other industrial interests of the State were comparatively overlooked. I therefore deputed Mr. J. L. Sexton, Jr., one of the clerks of this Bureau, whose long residence in the semi-bituminous coal region and intimate knowledge of mining affairs rendered him a very competent person to send upon a tour of inquiry and observation into the coal fields of Northern Pennsylvania. He proceeded by way of the Northern Central railway to Ralston, in Lycoming county, where he met Mr. A. Robertson, operator of the M'Intyre coal mines. These mines are owned by the M'Intyre coal company and are located on the mountain top, two and one-half miles north-east of Ralston. It is approached from the Northern Central railway by means of a series of inclines, the first being two thousand three hundred feet long, rising to an elevation of six hundred and seventy feet above the Northern Central railroad. At the top of the incline is a railroad about one-quarter of a mile in length, ascending ten feet more to the coal shutes. From this point there is a second incline, twenty rods long, rising one hundred and seventy-six feet to the upper coal seam, making a total elevation above the Northern Central railroad eight hundred and ninety feet, and seventeen hundred feet above tide water. At this elevation the village of M'Intyre, containing two hundred and ten dwellings, and a population of twelve hundred inhabitants, is located. The village contains a store, a church, a school house, 35×50, (with two rooms, employing two teachers—a male and female—with an average attendance of one hundred pupils,) a hall, which is occupied by the I. O. O. F., Knights of Pythias, Good Templars and the American Protestant association, and the necessary shops and other buildings required in carrying on the business of mining.

The store is leased by Messrs. A. Robertson & Co., which was well filled with a choice selection of groceries and general merchandise. Examining the articles on sale it was found that they were all of a superior class and compared very favorably with those of the same class in Williamsport, being, however, a trifle higher in price than at Fall Brook, Morris Run and Arnot, in Tioga county. As an offset to this it was ascertained that the scale of prices paid at M'Intyre, for mining coal of the same thickness and kind as that at Fall Brook, would balance this difference.

The miners are employed by contract and by the ton and no disagreement between the operator and them on account of price has been had for

the past four years, neither has there been any delay in the work for that period.

In conversation with the employees it was learned that there had been no cause for dissatisfaction each party living up to the spirit and letter of their contract.

Payments by the operator had always been made promptly at stipulated price. The utmost good feeling seemed to prevail.

There is no regular established market, but the town is supplied with fresh meat and vegetables by country butchers and hucksters.

It might be well to remark here that during the past six months the demand for coal has not been very active, and therefore the miners have not made full time; on an average about four and one-half days per week

BRADFORD COUNTY.

Mr. Sexton also visited Bradford county and made inquiries into the social condition of the mining districts in that county.

He obtained the following facts concerning the Towanda coal company through the courtesy of Major R. M. M'Dowell, mining engineer.

These mines are situated sixteen miles in a south-western course from Towanda at an elevation of 1,320 above that town, and 2,019 feet above tide. The mining town consists of two hundred and fifty dwellings, three-fourths of which are lathed and plastered, averaging 1,300 square feet per house with five rooms. The rent charged for these tenements ranges from one dollar and a half to two dollars and a half per month. The price of coal delivered to the families at the mines is \$2 50 per ton.

Schools.—There are two schools employing four teachers—size of school rooms, 24x50. Number of scholars enrolled, 350.

Churches.—There are two churches—one Presbyterian and one Catholic.

Public Hall.—One public hall erected and occupied by the I. O. O. F.

Societies.—The following societies are in successful operation: Good Templars, Catholic Temperance Society, I. O. O. F., and Knights of Pythias.

Market.—One market owned by Diven, Beadle & Co.

Physician.—Two physicians, who are paid by the employees.

Price list of a few articles selected from the general stock, on sale at the store and market.

Tea, black	\$ 75	per pound.
Tea, green.....	1 00	" "
Tea, Japan.....	1 00	" "
Coffee	25c. to 35	" "
Sugar.....	11c. to 13	" "
Cheese.....	16	" "

Butter.....	33	per pound.
Pork.....	14	" "
Ham.....	16	" "
Shoulders.....	11	" "
Mackerel, No. 1.....	12	" "
Crackers.....	10	" "
Soap..... 8c. to	9	" "
Tobacco, smoking.....	60	" "
Tobacco, chewing..... 80c. to	1 00	" "
Syrup.....	1 00	" gallon
Whale oil.....	1 25	" "
Kerosene oil.....	20	" "
Eggs.....	22	" dozen.
XXX white wheat flour.....	9 00	" barrel.
Corn meal.....	2 25	" cwt.
Feed.....	2 25	" "
Beef steaks in the market sells at..... 15c. to	18	" pound.
Beef per side..... 8c. to	9	" "
Veal.....	10	" "
Lamb..... 12c. to	14	" "
Pork..... 12c. to	15	" "

The foregoing price list and information was obtained about the first day of September, 1875, and compares very favorably with a similar list obtained by Mr. Sexton, at Towanda, where there is a great competition in the sale of the articles enumerated.

The Schraeder coal company mines are located about two miles distant from the Barclay mines, and are operated by Abbot, Davis & Co. The town contains seventy-five double dwellings, one store, two school houses, and a population of about 800 inhabitants. The same schedule of prices is adopted here as at Barclay, and the same general characteristics distinguish it.

There is a difference in favor of the laborer residing at the mines, compared with the price of labor per day at Towanda.

House rent and fuel are very much cheaper at the colliery than at Towanda, and when we consider the difference between house rent and fuel, also the per cent. of higher wages which he obtains at the colliery, it overbalances the extra prices paid on a few minor articles of subsistence. This difference is justly due the laborer at the mines, for his work is of that nature requiring him frequently to change his clothes, and otherwise to make his work distasteful.

A careful estimate made by gentlemen of the highest intelligence, compiled elsewhere in this report, from nine townships and one borough in Bradford county, shows that the average price paid per day for farm hands with board is \$1 00, and by the month at the rate of \$17 50

TIOGA COUNTY.

There are three companies and one or two individuals engaged in mining coal in this county. The individuals are operating upon a small scale, mining only for the retail trade. The companies are the Fall Brook, Morris Run and Blossburg. The mines of the Fall Brook coal company are located in the borough of Fall Brook, near the south-eastern portion of the county, at an elevation of about 1,800 feet above tide. The same company also are owners and operators of mines at Antrim, situated in the southern part of the county twelve miles south-east of Wellsboro', the county seat of Tioga county.

At Fall Brook there are two hundred and thirty dwellings, one store, one hotel, two churches, two large school houses, an Odd Fellows' hall, depot, express and telegraph office, physician's office, a saw mill, market house and meat shop.

The societies are I. O. O. F., Good Templars, Catholic Temperance society, Friendly society, Library Association and Miners' National Benevolent Association. The Odd Fellows' have a neatly furnished hall and a membership of about seventy-five. The Friendly society has about the same number of members.

There are three church organization: Presbyterian, Catholic and Episcopal. Population of the borough at present is 1,300. The Fall Brook coal company donated one-half the cost of each of the church edifices.

Schools.—There have hitherto been employed two male and two female teachers in the public schools. At present there are three females engaged in the work. The reason assigned for this change is on account of the depressed state of the coal trade, whereby a large number of the miners and laborers with their families have recently removed from the district. Night schools have been in successful operation during the autumn and winter months, for the past ten years and have proved of great value to those who have received instruction therein. For further comments upon the subject of night schools the reader is respectfully referred to that part of this report entitled "Education," and for deductions, etc., to the conclusion of this article.

The Mines.—They were opened in 1859 and the first shipment by rail to market was in March 1860. From that time up to the present, a period of fifteen years, there has been but two general interruptions in the work. One occurring in the winter and spring of 1865, and the other nearly nine years later, viz: in December, 1873. These strikes continued for a period of five months each.

In justice to both parties, it is only fair to state, that there are but few collieries in the Commonwealth where the work has gone on more harmoniously or more uniformly than at Fall Brook. For the past two years,

however, owing to the depressed condition of the coal trade the mines have not been worked to their full capacity, either in regard to time or quantity.

This state of affairs has caused the company to lessen their force and shorten the time of work. They retained for a number of months as many of the miners as desired to stay, dividing the work between them, in the hope that the coal trade would again revive. A large number have left Fall Brook, seeking work elsewhere, thereby reducing the number, so that the *out put* at present is less than in former years.

Ventilation.—As to ventilation, I would refer you to an extract taken from the report of the inspectors of bituminous mines to be found accompanying the tabulated schedule of labor reports from Tioga county.

Dwellings.—The dwellings consist of four classes :

First class are provided with good cellars, and are lathed, plastered, papered and painted. These rent at the rate of five dollars per month, or sixty dollars per year, and are kept in repair by the company.

Second class have good cellars, lathed, plastered and papered, but not painted on the outside, and are rented at \$4 50 per month.

Third class are lathed and plastered, are smaller than the first and second class, provided with good cellars and are rented at \$3 00 per month.

Fourth class consists of double planked and battened sides, with small cellars and not plastered. These rent at the rate of \$1 50 to \$2 50 per month.

Neither class are built in blocks, but stand out separate and have from one-fourth to one-half an acre of land connected with them, affording, in many instances, a very fine garden spot. The town is well laid out into streets and, when taken all together, presents a very neat appearance for a mining district and compares most favorably with any in the State.

Markets.—The town is supplied by a store, one public market and one private market. Regular market days are established by the borough council, when hucksters and butchers from the surrounding country bring to market meats, fish, vegetables, &c.

The private market house is leased to parties by the Fall Brook coal company, where meat, vegetables, canned fruit and all things, usually kept in such places, are sold.

Store.—The store is owned by the Fall Brook coal company and conducted for the past ten years by Mr. C. E. Halsey, their agent. The stock kept embraces a general assortment of dry goods, groceries, crockery, hardware, boots, shoes, caps, hats, household furniture, drugs, medicines, flour, meal, feed, potatoes, turnips, onions, beans, canned fruit, &c.

The goods on sale will compare most favorably, in regard to quality or price, with those offered elsewhere in the county. It might be well to remark here that an inferior article of merchandise cannot be sold to the miners. They only buy a first class article. This is particularly true in

relation to flour. The sales of flour at Fall Brook will show that out of 20,000 barrels, sold for the past ten years, 19,800 were XXX white wheat, the remainder, 200 barrels, being a first class article of red wheat and sold principally to persons not engaged in mining. The same will hold true in relation to tea, sugar, coffee, cheese, bacon, ham, shoulders, butter, lard and every other article consumed in a family.

It is estimated that the sales of sugar at this store, for the past ten years, have aggregated two hundred and twenty-five tons or four hundred and fifty thousand pounds. Of this amount sixty per cent. has been the best refined A sugar, thirty-nine and nine-tenth per cent. the very best yellow, the remainder, one-tenth per cent., brown of the very best brand.

Payments.—The company have uniformly and with only one exception, viz: In the month of September, 1873, paid their employees the balances due them on or about the fifteenth day of each month, in current money. This course has been pursued since their first organization in 1859. Many of the miners and laborers have been economical with their earnings, and have invested their surplus in real estate in various sections of the county or have it well secured by first judgment liens. The accumulations have amounted to sums varying from one to eight thousand dollars. Others, from various causes, have not been enabled to husband any considerable sum. Until the year 1873, the men employed at the mines were generally prosperous. Since that time the work has been unsteady and uncertain. The amount earned has scarcely been sufficient to give them a bare support. The cause of such a depression is beyond the control of either the manager, operator or the men employed. How long this state of things will continue to exist is beyond the power of this Bureau to foretell. The outlook now is certainly not encouraging. With countless tons of coal lying in the mountains and with every mechanical appliance at hand, and with hundreds of ready hands willing and anxious to engage in the work, it is hoped that the time is not far distant, when the work will again be resumed and carried on as in former years.

D. W. Knight, Esq., is manager at the mines, and A. J. Owen, cashier.

MORRIS RUN.

Morris Run is a mining town situated in the township of Hamilton, two miles west of Fall Brook, and four and a half miles east of Blossburg, containing 350 dwellings, with a population in 1874 of 2,350. Of this number there were employed during the year 1874, about 450 miners, and 300 other persons in various vocations connected with the mines, embracing superintendents, overseers, foremen, carpenters, blacksmiths, agents, clerks, telegraph operators, common laborers, mule drivers, slate pickers, lumbermen, &c.

These mines are connected with the Erie railroad at Corning, by means of the Tioga, Corning, Cowanesque and Antrim railway, and distant from Corning $44\frac{1}{2}$ miles.

The nationality of the people living at Morris Run, are divided between the Welsh, Irish, Scotch, English, Swede, German, French and American. The Welsh predominating in point of numbers.

The church organizations are the Welsh Congregationalists, Welsh Baptist, Primitive Methodist, Presbyterian, Methodist Episcopal and Catholic.

The societies and associations are the Odd Fellows, Good Templars, Knights of Pythias, Ivorites, Miners' National Benevolent Association and some minor social societies.

The Welsh Baptist, Welsh Congregational and Primitive Methodist have each erected a church edifice.

There are two large school houses, where several teachers are employed for a period of eight months in the year. Night schools are supported by private parties, and the teachers employed are those holding valid certificates from the County Superintendent. These schools have attained to a high degree of excellence.

Stores and Markets.—There is a large store filled with general merchandise conducted by Major T. B. Anderson for the Morris Run coal company. The stock on sale is similar to that at Fall Brook with no material difference in the schedule of prices. There are two markets, one public and one private. The public market is supplied with a market house and stalls, where meat and vegetables are on sale on stated days. The private market is opened every day of the week, Sunday's excepted. A bakery is connected with it.

Physician.—There are two resident physicians who are paid by the employees.

Drug Store.—A choice selection of drugs are kept on sale near the centre of the town by Dr. Ingram.

Work.—The work since the panic of 1873 has not been prosperous. The general depression in the coal trade has proved disastrous to the mining interests at Morris Run. There being but small demand for coal, the mines have been in operation only from one to two days per week. This dearth of employment has proved seriously detrimental, both to the interest of the operators and miners.

By a reference to the labor report given elsewhere, from the Morris Run company, it will be seen that the price paid miners per ton for mining is fair and reasonable, the only trouble being the lack of constant employment.

The shipment of coal from these mines has usually been about three hundred and fifty thousand tons annually. For the year 1875 the indications are that it will fall far short of that amount.

The superintendent at the mines is W. S. Nearing, Esq.

ARNOT.

Arnot is a mining town, situated four miles south-west of Blossburg, on Johnson creek, Tioga county, Pa., and contains three hundred and sixty-five dwellings, and a population estimated at two thousand eight hundred.

This town is owned by the Blossburg coal company. The company was first organized in April, 1866, by an act of the Legislature, approved April 11, of that year. The corporation consisted of Constant Cook, John Arnot, Charles Cook, Henry Sherwood, Franklin N. Drake, Ferral C. Dinniny, H. H. Cook, and Lorenzo Webber.

Since that time, by death and withdrawal, several of the original members have gone out and others taken their places. Like the other towns referred to, Arnot contains churches, schools, stores, markets, halls, bakeries, mills, shops, etc., and the same general characteristics prevail. The miners have had more and steadier work than those at Fall Brook and Morris Run. The capacity of these mines, when driven with a full force of men, will average two thousand tons per day.

The miner will dig from four and three-fourths to six tons per day, and some go beyond these figures. But six tons per day for a series of months is admitted to be the maximum. With steady employment at the present schedule of prices this would afford them a comfortable livelihood.

Market.—The prices paid for groceries and family supplies of all kinds will not vary materially from those at Blossburg, where there is a great competition in the sale of all the necessities of life. Connected as Arnot is with Blossburg by railroad, and being but four miles distant, no serious complaint is heard in relation to high prices, the chief complaint, being want of steady employment.

The Blossburg coal company employed, during the year 1874, 816 men and boys. Of this number 447 were miners on contract; the remainder consisting of outside laborers, inside laborers, mechanics, mule drivers, weigh masters, dumpers, slate pickers, mining overseers, watchmen, clerks, etc. The out-put for 1874 was less by fifty thousand tons than in 1873.

The resident manager at the mines is H. J. Landrus, Esq.

BLOSSBURG.

Blossburg is a borough containing about three thousand inhabitants, situated at the head of the Tioga valley.

At this point in 1792, semi-bituminous coal was discovered by Robert and Benjamin Patterson. A few years later Aaron Bloss settled there and subsequently gave the name "Blossburg" to the town, also to the coal. A local trade in coal was carried on for many years; but no shipments were made by rail, however, until the completion of the Corning and Blossburg railroad in 1840.

It is from this point that the railroads leading to the three mining towns, Fall Brook, Morris Run and Arnot, diverge. The repair shops of the Tioga railroad are located at Blossburg, giving employment to a large number of mechanics. A very large tannery is in successful operation, employing many men, also a glass factory, foundry and several mills, making it quite an industrial centre.

About three years since, almost the entire business portion of the town was destroyed by fire. It has been mainly rebuilt with brick. This has given employment to carpenters, bricklayers and laboring men generally. It is the fact of its near proximity to the mines and the support it derives from them, that leads to this reference. It seems to be the point where the miners and laborers from the several mines meet and discuss matters pertaining to their vocations, make purchases, compare markets and make deposits of savings in the bank located there. Any depression in business at the mines is immediately felt by merchants and other business men at Blossburg.

A number of the miners reside at Blossburg, and ride to their work at Morris Run and Arnot every morning. There are a great many tradesmen doing business at Blossburg, so that competition is lively, and consequently the markets compare well with those of other towns in the county, and it is claimed that goods are sold cheaper at this place than elsewhere, on account of the trade, in a measure, being overdone. The borough is supplied with churches, schools, public halls, a printing press, hotels, etc.

Schools.—One of the finest school buildings in the county has recently been erected and is supplied with a full corps of competent teachers. There is a necessity for night schools on a more liberal plan.

ANTRIM.

Antrim is situated nearly twelve miles south of Wellsboro', and owned by the Fall Brook coal company. It is the terminus of the Corning, Cowen-sque and Antrim railway. The town contains two hundred dwellings and a population of about twelve hundred inhabitants. For the year 1874 the company gave employment at this place to three hundred and ninety men. Two hundred and forty-five of whom were miners on contract. The mines were in operation on an average nine months.

The amount of coal mined was 126,860 tons of 2,000 lbs. The same schedule of prices prevails here as at the other towns mentioned in Tioga county; also the general features pertaining to markets, prices, &c. The tenements are neatly arranged on streets, and are painted, lathed and plastered, presenting a very fine appearance; in fact the town might justly be termed the model mining town in the State.

The mines are conducted by Thomas Farrar, manager for the Fall Brook coal company. For several years before the panic of 1873 the amount of

semi-bituminous coal mined in Tioga county was in round numbers, one million tons. About 900,000 tons of this amount was shipped by rail to Corning, Elmira, Watkins, Syracuse and Buffalo, in the State of New York, from whence it was distributed to the different markets east and west. It is extensively used by blacksmiths, manufacturers, railroad and salt companies, and for domestic purposes. The amount of money annually expended by these companies, in Tioga county, did not fall far short of two million dollars. The expending of this amount has aided much in the development of the resources of the county, affording a ready and cash market for every agricultural and manufacturing product, thereby enhancing the value of farming lands in the county, and giving a general impetus to industry. Therefore, any stoppage of work at the mines, or any depression in the coal trade is felt, not only by the operators, miners and laborers specially engaged, but by parties along the several lines of railroads leading from the county, and beyond into the State of New York. The several coal companies have now all the appliances necessary for the mining of 6,500 tons of coal per day. All that is lacking for the general welfare of the miner, laborer and operator is the demand for their product.

There are other industries in the county which are worthy of special mention. The lumber, tanning and manufacturing interests of various kinds are of considerable moment, involving the expenditure of large sums of money and giving employment to a great number of men.

They are distributed throughout the country, but with the limited fund at the disposal of this Bureau, were not examined.

LUZERNE AND OTHER COUNTIES.

Mr. Sexton spent several days in the county of Luzerne, obtaining a list of the collieries in the Middle District, and gathering general and specific information concerning the operation of the mines, consulting the markets, and observing the general features of its leading industry, the coal trade.

Luzerne contains (according to the latest survey) an area of 1,350 square miles or 864,000 acres of land. About 225,000 acres are under cultivation, averaging one square acre of cultivated land to each inhabitant in the county. Until the development of the coal trade, the agricultural production of the county was in excess of the home consumption. Now a different state of affairs exists. The rapid increase in population from 1860 to 1870, amounting to ninety thousand, changed the former order of things, and notwithstanding she contains within her limits some of the most fertile lands in the State, her agricultural productions now fall far short of the amount necessary for home consumption. Nearly one-half of her citizens are non-producers, relying upon the coal interest either directly or indirectly for

their employment or support. The competition carried on by the countless markets leaves no cause for complaint on the part of those engaged in industrial pursuits. They are so numerous and varied that no attempt to forestall them could succeed.

Leaving Luzerne, impressed with the idea that the resident inspectors of the mines were vigilantly exercising a care over the lives of those engaged in mining, and believing that the law of supply and demand will eventually regulate the price of coal and labor, and harmonize any ill feeling or misunderstanding now existing, Mr. Sexton went into Columbia, Montour and Northumberland, thence among the lumbermen of Lycoming, Clinton and Cameron counties.

Serious complaints were made in relation to the general stagnation in business, particularly among the lumbermen. A hasty tour was also made through Perry, Juniata, Mifflin, Huntingdon, Blair, Cambria, Westmoreland, Allegheny, Beaver and Mercer. It would extend this article beyond the limit prescribed, were we to particularize in relation to every locality visited. Tabulated statements from those counties will show to a great extent the condition of the iron, coal and other industrial interests.

The commissioners appointed to investigate the bituminous coal mines of the State have recently made a report concerning the condition and ventilation of the same, which seems to cover everything in that direction, and the tables elsewhere in this report will show the price paid per ton for mining, and other facts relating to them, to which the reader is respectfully referred.

It is expected also that a special report concerning the manufacturing and industrial interests of Allegheny county will reach this Department in time to be embodied in this report.

DEDUCTIONS AND SUGGESTIONS.

As we have elsewhere stated, the industries of the State are in a depressed condition, and it is an admitted fact that the operators in coal, the manufacturers and business men generally, are making a smaller percentage upon the capital invested than in many years previous. It is also admitted that the wages of the laborer are less, without that certainty of constant employment which has hitherto marked the history of labor in the Commonwealth. It would be well, therefore, for the employer and employee to carefully survey the whole field of labor and the causes of the depression before they suffer themselves to be drawn into a collision.

Causes beyond the immediate control of either workmen or operator have produced a general stagnation in the industrial pursuits of the State, and it is of the utmost importance they should unite in striving to remedy this unhappy and disastrous state of affairs.

How can this be done? Certainly not by contention and strife. Your interests are identical and reciprocal, and you will find it subservient to your best interest and pecuniary advantage to act in harmony with each other. It is an axiom "that man is a dependent being," dependent upon his fellow man for aid and support, and however much we may talk of *competence*, of being above want, of not being dependent upon any person or body of men, no such a state or condition of things exists in any country or community. In every relation in life, in every position in society, whether as farmers, mechanics, merchants, miners, laborers, capitalists, or of the learned professions, there is a mutual dependence, which money, position, character or influence cannot alter, cannot buy, cannot destroy or overcome. The mechanic and artisan depend for their support upon the prosperity and ability of the community in which they reside to employ or pay them for their designs and labors. If they cannot be assured in this respect, they are forced to seek some other source from which to obtain a livelihood. Before the miner that penetrates the sunless caverns of the earth can enter upon his work with prudence, he must know that the product of his toil is required, that it is demanded by the community or country at large. Without this assurance it is in vain that he has acquired a knowledge of subterraneous formations, and he might as well let his pick rust upon its handle as to pursue a calling that offers no compensation. The same is true of the operator. He will not invest his money where no return is offered. Neither will the manufacturer embark in a business where he cannot procure the raw material, coal or fuel, to drive his machinery or make sale of his products at a reasonable compensation. An establishment started upon any other security soon closes its doors, and the workmen are idle.

The laws of demand and supply show conclusively the mutual dependence in trade, as well as in the social relations. No person can reasonably claim for himself or his occupation exclusive privileges, or justly compel other trades or professions to pay tribute to him. There must be a reciprocal adjustment in these affairs, clearly demonstrating the mutual dependence of capital and labor.

COAL—SEMI-BITUMINOUS. LABOR AND PRODUCTION.

	TIOGA COUNTY.			
	Antrim.....	* Fall Brook....	Arnot.....	Morris Run.....
Miners on contract.....	245	175	447	437
Average daily wages.....	\$3 75	3 80	3 75	3 75
Miners on wages.....	3	22	.....	.....
Average daily wages.....	\$3 00	3 25	.....	.....
Outside laborers.....	32	26	28	72
Average daily wages.....	\$1 75	1 75	1 88	1 88
Inside laborers.....	3	12	14	22
Average daily wages.....	\$1 87	1 87	2 25	2 25
Outside mechanics.....	21	2	9	21
Average daily wages.....	\$2 50	2 75	2 75	2 75
Inside mechanics.....	.....	5	1	2
Average daily wages.....	.....	\$2 50	3 00	2 75
Outside mule drivers.....	.....	2	60	70
Average daily wages.....	.....	\$2 12	2 00	2 00
Inside mule drivers.....	20	25	45	.....
Average daily wages.....	\$2 00	2 12	2 00	.....
Weightmasters.....	2	2	2	4
Average daily wages.....	\$1 93	2 69	2 80	2 31
Dumpers.....	6	12	19	24
Average daily wages.....	\$1 75	1 87	1 87	1 88
Slatepickers.....	39	28	74	24
Average daily wages.....	\$1 62	1 87	1 76	1 63
Mining overseers.....	1	1	4	4
Average daily wages.....	\$4 80	4 80	4 90	4 90
Civil engineers.....	1	1	.....	.....
Average daily wages.....	\$3 08	3 08	.....	.....
No. of boys.....	15	40	155	.....
Average daily wages.....	88	88	1 56	.....

	9 months	7 months	6½ months
Average time in operation during year.....	.....	.....	.....
Quantity in tons mined.....	126,860	188,932	270,000
Value in dollars.....	\$327,000	347,000	675,000
Total number of hands employed.....	390	357	816
			719

[illegible]

COAL—SEMI-BITUMINOUS. LABOR AND PRODUCTION.—Continued.

WESTMORELAND COUNTY.											
	Westmoreland Coal Co*.....	Furnace	Latrobe.....	Millwood shaft.....	Saltburg	Waverly Mines.....	Penn Gas Coal Company†..	White Heath.....	Shafton	Yough National.....	Washington county—Harlem.....
Miners on contract.....	683	.....	12	90	.....	150	.....	70	50	45	80
Average daily wages.....	\$2 31	.....	2 00	1 60	.....	2 60	.....	.....	2 60	.....	3 59
Miners on wages.....	.....	35	.....	.....	60	.....	608	.....	.....	.....	.....
Average daily wages.....	.....	\$1 80	.....	.....	3 00	.....	2 55	.....	.....	.....	.....
Outside laborers.....	89	1	.....	5	6	25	97	4	5	2	.....
Average daily wages.....	\$1 80	2 00	.....	1 50	2 75	1 35	1 75	1 75	1 85	1 75	.....
Inside laborers.....	37	1	.....	16	5	.....	22	.....	2	2	.....
Average daily wages.....	\$1 90	2 25	.....	1 80	2 50	.....	1 90	.....	2 10	2 00	.....
Outside mechanics.....	5	.....	1	2	2	.....	16	2	3	1	.....
Average daily wages.....	.....	.....	\$1 75	2 00	3 00	.....	2 00	2 00	2 75	2 50	.....
Inside mechanics.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Average daily wages.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Outside mule drivers.....	8	2	2	.....	5	10	7	6	.....	.....	.....
Average daily wages.....	\$1 90	2 00	1 50	.....	2 00	1 40	1 00	.....	.....	.....	.....
Inside mules drivers.....	76	.....	2	5	.....	.....	40	.....	5	4	6
Average daily wages.....	\$2 05	.....	2 25	1 80	.....	.....	2 00	.....	2 25	2 50	2 50
Weighmasters.....	7	1	1	1	1	1	5	.....	1	1	1
Average daily wages.....	\$2 04	2 00	1 75	2 00	2 50	1 75	1 75	.....	2 15	1 75	2 50
Dumpers.....	.....	1	1	.....	2	3	8	2	1	1	2
Average daily wages.....	.....	\$1 75	1 75	.....	2 00	1 25	1 75	2 00	2 10	1 50	2 50
Slate pickers.....	.....	.....	.....	.....	2	.....	.....	.....	.....	.....	.....
Average daily wages.....	.....	.....	.....	.....	\$2 00	.....	.....	.....	.....	.....	.....

ages.....	.....	1	1	1	1	1	1	1	1	1	1	1	1
ages.....	.....	\$3 00	1	.....	.....	5 00	5 00	.....	.....	.....	.....	.....	.....
ages.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
ages.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
operation dur-	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
s mined.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
s.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
ages.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
f employees..	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

Southside drift; Brush Rundrift; Larimer, No. 1 drift; Larimer, No. 2 drift; Spring Hill drift; Foster slope; Westmore-
Company—Penn, Southside; Penn, Northside Shaft, No. 1; Shaft, No. 2; Coal Run Mines; Yonghiogheny Nos. 1, 2, 3, and 4.

ERRATA.

From page 174 to page 183 inclusive, for "semi-bituminous," read "bituminous;" and on page 184 after "Lycoming county," read "bituminous coal," to "Lawrence county," page 194.

[illegible]

Mining overseers.....	27	1	1	1	1	1	1	1	1
Average daily wages.....	\$2.75	3 00	.....	3 25	3 00	.....	.....	.....	2 66
Civil engineers.....	1	1	.....	.....	.....	.....	.....	.....	.....
Average daily wages.....	\$5 00	5 00	.....	.....	.....	.....	.....	.....	.....
Number of boys.....	1	5	.....	7	.....	9	.....	.....	1
Average daily wages.....	\$1 50	.....	.....	50	.....	62	.....	.....	1 50
Average time in operation during year.....	9 months	9 months	6 months	240 days.	.....	10 mos..	2 mos..	3 mos..	3½ mos.
Quantity in tons mined.....	39,284	18,750	30,000	60,000	29,765	84,418	1,362	1,000	7,014
Value in dollars.....	\$38,747	37,560	33,090	60,000	32,741	.....	.....	1,500	10,521
Total employed.....	130	.....	.....	2 50	2 00	169	28	6	80

[illegible]

[illegible]

[illegible]

*Boys.

[illegible]

*This Bureau has received from Messrs. Kimberly & Filer, Mt. Pleasant, Mercer county, and Filer & Co., Keel Ridge Mine, No. 3, reports from their collieries, which were imperfect in some particulars, and could not be corrected, as our tables were then in the hands of the State Printer. Kimberly & Filer mined 39,000 tons, valued at about \$75,000, and employed 103 men. Filer & Co. mined 35,000 tons, valued at \$87,500, giving employment to 104 men.

COAL—SEMI-BITUMINOUS AND ANTHRACITE. LABOR AND PRODUCTION—CONTINUED.

	LAWRENCE COUNTY.			M'Kean county—Longwood.....			Washington county—Mingo Coal Works.....			ANTHRACITE COAL—LUZERNE COUNTY.				
	Beaver.....	Clinton.....	South Wales.....							Butler Colliery.....	Columbia Colliery.....	Hillman's Colliery.....	Spring Brook Colliery at Moosic.....	Hollenback Colliery.....
Miners on contract.....	60	50	32	8	55	40	11	30	55	30	30	30	55	16
Average daily wages.....	\$2 59	2 60	2 00	3 00	2 84	2 70	3 75	3 00	2 75	3 00	3 00	3 00	2 75	2 75
Miners on wages.....				47		40			3				3	
Average daily wages.....				2 50		2 35			2 45				2 45	
Outside laborers.....	8	7	2	4	4	18	3	10	35	10	10	10	35	4
Average daily wages.....	\$1 50	1 72	1 90	1 50		1 65	1 60	1 67	1 35	1 67	1 67	1 67	1 35	1 67
Inside laborers.....	3	5	2	4	1	11	11	35	88	35	35	35	88	16
Average daily wages.....	\$2 26	2 25	2 00	1 62	3 00	1 60	2 27	2 00	2 10	2 00	2 00	2 00	2 10	2 25
Outside mechanics.....	1	2	1	3	1	8	3	2	7	2	2	2	7	3
Average daily wages.....	\$2 45	2 62	2 00	2 00	3 00	2 65	2 30	2 25	2 50	2 25	2 25	2 25	2 50	2 50
Inside mechanics.....	2	1		1		2	1	1	4	1	1	1	4	2
Average daily wages.....	\$3 06	2 50		1 62		2 50	2 50	2 25	2 50	2 25	2 25	2 25	2 50	2 50
Outside mule drivers.....			*1	14		3	*1		*5				*5	1
Average daily wages.....		1 00	1 25	1 37	2 25	1 60	1 25	1 50	1 25	1 50	1 50	1 50	1 25	1 67
Inside mule drivers.....	6	*10	6		4	11	1		*20	*5	*5	*5	*20	*6
Average daily wages.....	\$1 53	1 52	1 87		2 25	95	2 50	1 75	1 50	1 75	1 75	1 75	1 50	1 58
Weighmasters.....	1	1	1	1	1	1	1		1				1	1
Average daily wages.....	\$1 75	1 87	2 00	1 75	2 75	2 00	2 25		2 00				2 00	2 50
Dumpers.....	2	1	1	3	*1		1		4				4	1
Average daily wages.....	\$1 75	1 71	1 75	1 50	75	1 65	1 60		1 75				1 75	1 67
Slate pickers.....						*80	*10	*12	5				5	6
Average daily wages.....						55	52	65						1 67

Mining overseers.....	1	1	1	1	1	1	1	1	1	2	2	2
Average daily wages.....	\$3 50	3 83	3 00	5 00	4 00	3 33	5 00	3 25	3 50	3 25	3 50	3 50
Civil engineers.....												2
Average daily wages.....												3 33
Number of boys.....	15	20	7									4
Average daily wages.....	\$1 25	1 49	1 00							1 40	1 40	1 40
Average time in operation												55
during year.....	4 mos...	6 mos...	3 mos...	240 days,	8 mos...	7 mos...	10 mos...	12 mos...	239 days,			
Quantity in tons mined.....	13,030	14,251	6,495	24,110	27,517	70,193	38,000	91,899	26,298			
Value in dollars.....	\$27,363	30,145	11,691	52,686	41,352	175,482	85,000	165,419	34,188			
Miscellaneous labor.....		1										
Average daily wages.....		3 50										
Total employees.....												

* Boys.

† Slate pickers.

Mining overseers.....	2	2	1	23	1	1	1	1	1	1
Average daily wages.....	\$3 00	4 00	3 43	4 00	3 00	3 00	3 00	3 00	3 00	3 50
Civil engineers.....		1		\$15						
Average daily wages.....		\$1 00		2 38						
Number of boys.....	1	73		145		15	14	8		
Average daily wages.....	\$32									
Average time in operation	\$9 65	60		53		1 53	1 53	1 53		
during year.....	90 days,	275 days,		11 mos.,	10 mos.,	10 mos.,	10 mos.,	10 mos.,	240 days,	
Quantity in tons mined.....	44,836	221,198	71,759	1,684,574	18,801	107,125	104,477	92,117	20,000	
Value in dollars.....	\$80,705	570,690	173,000	10,000	2,616,819	33,842	214,250	209,554	50,000	
Miscellaneous labor.....				971	1				5	
Total employed.....				5,829					60	

*19 collieries, as follows : Racket Brooks Breaker ; Coal Brook ; No. 1 Shaft, Carbondale ; No. 3 Shaft, Carbondale ; Powderly ; White Oak ; Grassy Island ; Oxyphant No. 1 ; Oxyphant No. 2 ; Legitts' Creek ; Von Storch ; Mill Creek ; Pine Ridge ; Laurel Run ; Baltimore Slope ; Baltimore Tunnel ; Plymouth No. 1 ; Plymouth No. 2 ; Plymouth No. 3 ; Boys. †State pickers. §10 are boys.

COAL--ANTHRACITE. LABOR AND PRODUCTION--CONTINUED.

LUZERNE COUNTY.

	Elk Creek Mines.....	Coray.....	Gowan.....	Humbolt.....	Sibley.....	Spring Mountain.....	Jones, Simpson & Co.....	Franklin.....	Warrior Run.....	Roaring Brook.....	Beaver Brook.....
Miners on contract.....	.....	80	25	61	75	120	102	48	40	60	79
Average daily wages.....	.....	\$2 25	2 25	3 00	2 50	4 14	.....	3 23	3 00	5 15	3 78
Miners on wages.....	4	.....	5	2	.....	.....	.....	.....	10	.....	46
Average daily wages.....	\$2 25	.....	2 00	2 33	.....	.....	.....	.....	\$2 50	.....	2 53
Outside laborers.....	.....	16	15	6	20	100	23	77	30	58	47
Average daily wages.....	.....	\$1 80	1 60	2 00	1 75	1 56	1 62	1 67	1 67	1 56	1 80
Inside laborers.....	4	80	10	24	75	198	108	74	50	40	15
Average daily wages.....	.....	2 00	1 80	2 33	2 30	2 06	2 12	2 07	2 25	1 54	2 07
Outside mechanics.....	1	4	5	3	10	14	3	14	10	4	19
Average daily wages.....	.....	2 25	2 00	2 60	2 50	2 50	2 37	2 50	2 50	2 54	2 50
Inside mechanics.....	\$2 00	10	.....	.....	3	3	3	10	1	.....	11
Average daily wages.....	.....	\$2 25	.....	.....	2 65	2 75	2 37	1 60	2 50	.....	2 53
Outside mule drivers.....	*1	*15	1	*3	2	3	*3	5	1	*13	*5
Average daily wages.....	60	1 00	1 80	1 67	1 00	1 75	85	1 67	2 00	1 15	1 25
Inside mule drivers.....	.....	*35	3	6	18	14	*42	17	2	*23	7
Average daily wages.....	.....	\$1 10	1 50	2 12	1 10	2 06	95	1 60	2 00	1 10	2 07
Weighmasters.....	1	1	.....	.....	1	.....	.....	.....	.....	1	1
Average daily wages.....	\$1 75	2 00	.....	.....	.....	.....	2 25	.....	.....	1 96	2 30
Dumpers.....	.....	6	1	*1	1	3	10	2	2	.....	.....
Average daily wages.....	.....	\$1 70	1 80	1 67	1 75	1 60	1 62	1 67	2 00	.....	.....
Slate pickers.....	4	*60	*14	*57	63	22	12	10	*20	*30	*45
Average daily wages.....	50	70	60	1 23	75	1 55	1 04	1 50	70	39	78

Mining overseers.....	2	2	1	1	8	1	1	1	1	1	4	1
Average daily wages.....	\$1 00	3 00	5 00	3 84	3 00	3 00	5 00	4 00	4 00	4 50	4 00	1 00
Civil engineers.....	1	1	1	1	1	1	1	1	1	1	1	1
Average daily wages.....	\$2 25	4 00	2	114	58	58	\$7 00	41	4	1 50	21	1 38
Number of boys.....	2	2	1 33	91	50	50	66	66	1 50	254 days,	1 38	254 days,
Average daily wages.....	\$1 25	10 mo's.	11 mo's.	189 days,	10 mo's.	10 mo's.	241 days,	300 days,	240 days,	240 days,	1 38	254 days,
Average time in operation during year.....	260 days,	13 352	55,750	202,264	118,881	118,881	95,875	50,000	117,124	117,124	1 38	254 days,
Quantity in tons mined.....	133,000	27,600	125,437	175,000	187,237	187,237	191,750	100,000	204,967	204,967	1 38	254 days,
Value in dollars.....	\$212 800	6	10	5	18	18	191,750	100,000	204,967	204,967	1 38	254 days,
Other labor.....	6	10	10	5	18	18	191,750	100,000	204,967	204,967	1 38	254 days,
Average daily wages.....	316	83	178	293	3 65	3 65	4 00	4 00	293	293	1 38	254 days,
Total employed.....	316	83	178	293	617	617	301	301	293	293	1 38	254 days,

* Boys.

† 25 men at \$1 75, and 32 boys at 83c.

‡ 11 men at \$1 50, and 24 boys at 55c.

COAL—ANTHRACITE. LABOR AND PRODUCTION—CONTINUED.

LUZERNE COUNTY.—Lehigh and Wilkesbarre Coal Company—Wilkesbarre Division.

	Diamond, No. 1	Kidder, No. 3	Empire, No. 4	Empire, No. 5	Hartford, No. 6	Sugar Notch Shaft, 9	Sugar Notch Slope, 10	Lance, 11	Dodson, 12	Gaylord, 13
Miners on contract.....	170	63	159	35	104	116	150	73	112	98
Average daily wages	\$2 50	2 50	2 50	2 50	3 27	2 75	3 00	3 75	3 75	3 75
Miners on wages.....						6	8	4	5	6
Average daily wages						2 50	2 25	2 50	2 50	2 50
Outside laborers.....						40	30	25	30	20
Average daily wages	1 01	49	74	28	42	1 67	1 67	1 67	1 67	1 67
Inside laborers.....	\$1 67	1 67	1 67	1 67	1 27	1 65	25	105	167	1 90
Average daily wages	\$2 20	2 20	2 20	2 20	1 90	2 10	2 10	1 90	1 90	1 90
Outside mechanics.....	9		5	3	9	6	5	5	5	5
Average daily wages	\$2 25		2 25	2 25	2 50	2 25	2 35	2 50	2 50	2 50
Inside mechanics.....	19	8	17	6	2	3	3	4	4	6
Average daily wages	\$2 50	2 50	2 50	2 50	2 50	2 40	2 50	2 50	2 50	2 50
Outside mule drivers	6	4	7	4	9	7	33	34	2	35
Average daily wages	\$1 50	1 50	1 50	1 50	1 25	1 25	1 12	1 25	2 00	1 25
Inside mule drivers	42	14	41	7	9	25	27	3	6	10
Average daily wages	\$1 90	1 90	1 90	1 90	1 90	1 35	1 35	1 75	1 75	1 75
Weigh masters										
Average daily wages.....										
Dumpers.....	12	5	7	6	8			3	3	5
Average daily wages	\$1 67	1 67	1 67	1 67	1 75			1 67	1 67	1 67
Slate pickers.....	\$99	78	\$135	\$36	\$112	20	8	10	12	8
Average daily wages.....	\$ 70	70	70	70	70	1 40	1 40	1 50	1 50	1 50

[illegible]

Boys.

COAL—ANTHRACITE. LABOR AND PRODUCTION—CONTINUED.

	LUZERNE COUNTY.—WILKESBARRE DIVISION.					HONEY BROOK DIVISION.				LEHIGH DIVISION.	
	Nottingham, 15.....	Reynolds, 16.....	Hanover, 17.....	Breaker, 18.....	Breaker, 19.....	Breaker, No. 1.....	Breaker, No. 2.....	Breaker, No. 4.....	Breaker, No. 5.....	Breaker, No. 4.....	Breaker, No. 5.....
Miners on contract.....	80	88	7	80	75	70	81	65	93	63	25
Average daily wages.....	\$3 50	3 50	3 98	3 25	3 25	4 68	3 70	3 55	3 34	3 22	2 95
Miners on wages.....	10	50	30	50	30	25	25	25	25	15	87
Average daily wages.....	\$2 50	2 50	35	2 50	2 50	27	29	25	58	2 58	2 58
Outside laborers.....	60	59	1 67	90	14	1 79	1 79	1 79	37	37	51
Average daily wages.....	\$1 67	1 67	1 17	1 75	1 75	1 79	1 79	1 79	1 79	1 73	1 75
Inside laborers.....	89	100	2 25	145	120	39	86	46	81	49	61
Average daily wages.....	\$1 90	1 90	2 25	2 25	2 25	2 08	2 08	2 08	2 08	2 14	2 14
Outside mechanics.....	7	5	8	40	4	8	9	5	9	17	8
Average daily wages.....	\$2 50	2 50	2 50	2 25	2 50	2 50	2 50	2 40	2 40	2 40	2 40
Inside mechanics.....	5	5	3	10	4	4	5	3	4	.....	.....
Average daily wages.....	\$2 50	2 50	2 50	2 50	2 25	2 50	2 50	2 50	2 50	.....	.....
Outside mule drivers.....	16	110	42	4	.....	3	46	42	43	.....	.....
Average daily wages.....	\$1 25	1 25	1 70	1 75	.....	1 75	1 30	1 00	1 00	2	1 25
Inside mule drivers.....	10	10	42	420	49	18	16	5	18	1 75	1 25
Average daily wages.....	\$1 75	1 75	1 75	1 60	1 60	2 18	2 18	2 18	2 18	1 24	1 17
Weigh-masters.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1 40	1 66
Average daily wages.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Dumppers.....	.....	5	1	3	1	.....	.....	.....	.....	2	8
Average daily wages.....	.....	\$1 67	2 00	2 25	2 25	.....	.....	.....	.....	1 74	.....
Slate pickers.....	10	10	23	40	14	8	7	5	3	5	52
Average daily wages.....	\$1 50	1 50	1 67	1 75	1 60	1 25	1 25	1 25	1 25	1 66	1 73

Mining overseers.....	1	1	2	3	2	1	1	1	1	1	2	2
Average daily wages.....	\$4 00	4 00	3 33	3 50	3 75	5 00	5 00	5 00	4 00	4 00	4 00	4 00
Stationary engineers.....			3			5	7	3	6			
Average daily wages.....			2 50			2 67	2 67	2 50	2 50			
Number of boys.....		65	44	57	33	45	62	72	40	81	8	
Average daily wages.....	\$0 90	90	75	75	75	72	69	70	75	78	95	
Average time in operation during year.....	240 days.	240 days.	54 days.	188 days.	150 days.	203 days.	187 days.	184 days.	235 days.	200 days.	200 days.	
Quantity in tons mined.....	105,264	102,782	7,123	129,049	55,415	92,963	86,275	78,957	134,306	70,384	78,423	
Value in dollars.....	\$239,094	231,259	16,027	290,320	124,684	223,111	207,082	189,496	322,335	168,921	188,215	
Other laborers.....			3	2	1	7	10	8	19	†14		
Average daily wages.....			\$1 75	1 85	3 33	2 25	2 37	2 00	2 35	1 19		
Total employed.....	343	358	151	545	307	235	319	240	335	311	321	

* Lehigh and Wilkesbarre coal company.

† Boys.

COAL—ANTHRACITE. LABOR AND PRODUCTION—CONTINUED

	LUZERNE COUNTY.—LEHIGH DIVISION.						NORTHUMBERLAND COUNTY.					
	Breaker, No. 6.....	Breaker, No. 8.....	Breaker, No. 9.....	Breaker, No. 10.....	Nesquehoning.....	Bear Valley.....	Ben Franklin.....	Black Diamond.....	Cameron.....	Coal Ridge, No. 3.....	Enterprise.....	
Miners on contract.....	25	71	65	38	67	55	50	32	180	50	51	
Average daily wages.....	\$3 92	4 14	3 20	3 15	3 41	\$3 50	2 95	2 69	2 81	3 40	4 32	
Miners on wages.....	8	23	55	16	15	30	.....	1	29	14	6	
Average daily wages.....	\$2 72	2 38	2 58	2 58	2 60	\$2 15	.....	2 16	2 25	2 40	2 16	
Outside laborers.....	45	35	31	38	55	41	17	4	61	17	10	
Average daily wages.....	\$1 70	1 75	1 78	1 88	1 67	\$1 50	1 33	1 66	1 58	1 75	1 66	
Inside laborers.....	41	57	95	101	55	27	22	.....	109	15	6	
Average daily wages.....	\$2 18	2 20	2 25	2 04	2 21	\$1 83	1 83	.....	1 83	1 90	1 83	
Outside mechanics.....	10	10	11	12	17	3	5	2	25	5	9	
Average daily wages.....	\$2 40	2 34	2 39	2 35	2 49	\$2 50	2 59	2 29	2 17	2 63	2 50	
Inside mechanics.....	.....	8	.....	9	.....	.....	.....	.....	.....	.....	1	
Average daily wages.....	.....	\$2 37	.....	2 48	.....	.....	.....	.....	.....	.....	2 50	
Outside mule drivers.....	.....	37	27	1	39	6	36	21	12	1	3	
Average daily wages.....	\$1 46	1 40	1 45	1 88	1 60	\$2 15	1 16	1 15	1 09	2 25	1 53	
Inside mule drivers.....	.....	223	2	12	112	25	8	8	22	5	6	
Average daily wages.....	\$1 60	1 67	2 33	1 92	1 69	\$1 15	2 00	2 00	1 42	1 99	2 09	
Weightmasters.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Average daily wages.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Drapers.....	2	3	4	2	6	1	2	2	5	.....	3	
Average daily wages.....	\$1 74	1 71	2 40	1 74	1 60	\$1 83	1 75	90	1 41	.....	1 66	
Slate pickers.....	11	5	2	2	3	20	23	15	75	30	41	
Average daily wages.....	\$1 65	1 65	1 35	1 88	1 34	75	70	60	83	70	1 35	

	2	2	2	2	2	3	1	2	1	1	1	1
Mining overseers.....	\$4 01	4 01	4 01	4 01	4 00	4 92	1	5 00	3 00	5 77	3 90	4 50
Average daily wages, civil engineers.....												1
Average daily wages.....												5 00
Number of boys.....	72	69	79	92	82	50	4	5			37	23
Average daily wages.....	73	75	92	92	81	72	1 00	1 50			91	
Average time in operation during year.....	200 d.	200 d.	200 d.	200 d.	200 d.	200 d.	10 m.	9 m.	10 m.	208 d.	88 d.	209 d.
Quantity in tons mined.....	77,225	\$7,053	80,765	80,765	89,781	88,983	61,000	51,000	24,448	118,674	7,000	58,874
Value in dollars.....	\$185,341	208,927	193,837	193,837	215,486	213,561	150,000	127,500	51,296	237,318	17,000	130,000
Other laborers.....	*5	*7	*7	*7	*11	*6						
Average daily wages.....	93	93	93	93	93	\$1 00						
Total employed.....	242	321	360	360	346	298	243	143	62	519	175	161

* Boys.

† Lehigh and Wilkesbarre coal company.

COAL—ANTHRACITE. LABOR AND PRODUCTION—CONTINUED.

NORTHUMBERLAND COUNTY.

	Excelsior.....	Franklin.....	Geo. Fales.....	Locust Gap.....	Greenback.....	Henry Clay.....	Hickory Ridge.....	Hickory Swamp.....	Luke Fidler.....	Morton.....	Stuartville.....
Miners on contract.....	70	17	35	90	10	69	30	105	110	30	90
Average daily wages.....	\$3 60	2 60	2 50	3 70	3 00	2 50	2 25	2 50	2 38	3 75	3 62
Miners on wages.....		4	3	6	75	1	7	7	40		
Average daily wages.....		\$2 00	2 00	2 33	2 50	2 16	2 16	2 17	2 16		
Outside laborers.....	15	5	13	29	7	17	15	25	30	4	24
Average daily wages.....	\$1 91	1 50	1 50	1 58	1 66	1 68	1 75	1 58	1 58	1 83	1 91
Inside laborers.....	33	5		55	20	29	10	38	50		59
Average daily wages.....	\$2 16	1 83		1 83	1 83	1 83	2 00	1 83	1 83		2 22
Outside mechanics.....	3	1	1	6	2	3	8	9	20	2	4
Average daily wages.....	\$2 75			2 50	2 08	2 33	2 58	2 04	2 20	2 50	2 46
Inside mechanics.....		1				2					
Average daily wages.....						\$2 40					
Outside mule drivers.....	3	*2	3	4	4	*6	1	10	3	*2	*3
Average daily wages.....	\$1 10	1 00	1 00	1 00	1 75	1 00	1 59	1 50	1 50	1 18	1 24
Inside mule drivers.....	17	2	4	5	4	12		7	25	*3	*12
Average daily wages.....	\$2 00	2 00	1 83	1 66	2 00	2 00		1 53	1 83	1 85	1 34
Weightmasters.....											
Average daily wages.....											
Dumpers.....					2	2	3	6	2	*1	*5
Average daily wages.....					\$1 50	1 68	1 53	1 44	1 76	1 18	83
Slate pickers.....	62	*14	*15	48	*35	39	*15	*71	*63	*14	*39
Average daily wages.....	\$1 10	60	70	60	60	75	90	92	82	73	75

COAL—ANTHRACITE. LABOR AND PRODUCTION.—CONTINUED.

SCHUYLKILL COUNTY.

Northumberland co.—Royal Oak.

	Bear Run.....	Beaver Run.....	Big Mine Run.....	Black Heath.....	Boyce Baltimore.....	Cambrian.....	Colket.....	Cuyler.....	Delano.....	Diamond.....
Miners on contract.....	43	10	80	15	40	20	58	88	38	10
Average daily wages.....	\$3 87	2 50	3 00	2 16	3 00	3 00	3 38	3 00	3 13	2 50
Miners on wages.....		2	20		15	20	18	3	8	2
Average daily wages.....		\$2 33	2 50		2 17	3 00	2 24	2 17	2 33	2 25
Outside laborers.....	18	5	50	14	21	10	15	37	9	38
Average daily wages.....	\$1 83	1 66	1 75	1 66	1 66	1 67	1 70	1 66	1 66	1 25
Inside laborers.....	52	1	49		20	20	17	6	15	33
Average daily wages.....	\$2 06	2 00	2 00		1 85	1 91	1 89	1 83	1 93	1 50
Outside mechanics.....	4	1	10	5	4		2	6	3	
Average daily wages.....	\$2 30	2 50	2 50	2 25	2 50	2 50	2 33		2 55	
Inside mechanics.....									1	
Average daily wages.....									2 50	
Outside mule drivers.....	34	1	35	3	3	4	33	4	1	31
Average daily wages.....	\$1 25	1 50	1 35		1 00		75	1 66	2 00	1 00
Inside mule drivers.....	4	1	38	1	4	4	30	14	2	31
Average daily wages.....	\$1 77	1 66	1 50		1 35		1 10	1 50	1 66	1 00
Weigh masters.....										
Average daily wages.....										
Dumpers.....	2	1			2			1	3	32
Average daily wages.....	\$1 67	2 00			1 33			2 50	1 66	1 25
Slate pickers.....	34	36	75	34	44	26	37	62	32	34
Average daily wages.....	93	75	75	75	66	60	45	75	86	75

COAL—ANTHRACITE. LABOR AND PRODUCTION.—CONTINUED.

SCHUYLKILL COUNTY.

	Diamond.....	East Mahanoy.....	Enterprise.....	Eureka.....	Girard.....	Gilberton.....	Hillside.....	Kalmia.....	Keeley's Run.....	Kemble.....	Kentucky.....
Miners on contract.....	4	83	25	14	48	33	40	37	45	.....	2
Average daily wages.....	\$2 25	3 00	3 00	3 12	1 25	15 49	3 00	3 88	3 30	.....	2
Miners on wages.....	.....	4	.....	2	.....	39	6	.....	92	8	33
Average daily wages.....	.....	\$2 33	.....	2 16	.....	2 25	2 50	.....	2 19	2 14	2 16
Outside laborers.....	1	29	12	10	40	40	25	30	62	4	14
Average daily wages.....	.....	\$1 83	1 67	1 67	1 83	1 66	1 75	1 67	1 62	1 66	1 67
Inside laborers.....	1	40	15	9	60	45	40	23	57	3	12
Average daily wages.....	.....	\$2 08	1 83	1 83	2 05	2 05	2 10	1 92	1 90	1 83	1 83
Outside mechanics.....	3	.....	4	.....	9	17	6	9	12	1	2
Average daily wages.....	.....	\$2 33	2 50	.....	2 75	2 66	2 50	2 81	2 29	2 25	2 42
Inside mechanics.....	.....	.....	.....	.....	.....	3	3	.....	5	.....	.....
Average daily wages.....	.....	.....	.....	.....	.....	2 25	2 50	.....	2 20	.....	.....
Outside mule drivers.....	.....	7	2	.....	35	55	4	4	.....	1	2
Average daily wages.....	.....	\$1 00	1 00	.....	1 33	1 25	1 25	83	.....	2 00	1 33
Inside mule drivers.....	.....	13	3	.....	7	88	16	5	.....	.....	2
Average daily wages.....	.....	\$1 63	1 25	1 06	1 50	1 50	1 40	1 12	1 15	.....	1 58
Weighmasters.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....
Average daily wages.....	.....	.....	.....	.....	.....	.....	2 00	.....	.....	.....	.....
Dumpers.....	2	.....	.....	.....	.....	4	4	.....	1	.....	2
Average daily wages.....	.....	\$1 67	.....	.....	.....	1 77	1 75	.....	1 50	.....	1 67
Slate pickers.....	.....	185	16	39	81	57	45	4	102	.....	21
Average daily wages.....	.....	85	70	59	85	89	65	1 50	99	.....	82

Mining overseers.....	1	1	2	4	2	3	3	3	1	1
Average daily wages.....	\$1 00	4 00	4 79	4 60	3 25	3 80	3 33	3 33	1 00	3 85
Civil engineers.....										
Average daily wages.....										
Number of boys.....	2									
Average daily wages.....	\$0 92									
Average time in operation										
during year.....	4 m.									
Quantity in tons mined.....	74,943	9 m.	182 d.	184 d.	8 m.	11 m.	10 m.	10 m.	61 d.	199 d.
Value in dollars.....	225,098	16,500	45,846	107,819	48,850	61,170	86,587	86,587	108	13,944
Other labor.....	3	41,250	136,268	285,251		152,700	161,897	161,897	345	37,614
Average daily wages.....	\$2 40	2 00			1		2	2	4	3
Total employed.....	8	205	252	266	203	160	322	322	21	95

*Boys.

†State pickers.

‡Gilberton miners pay their assistants.

COAL—ANTHRACITE. LABOR AND PRODUCTION—CONTINUED.

SCHUYLKILL COUNTY.

	Koh-i-noor.....	Primrose.....	Sharp Mountain.....	Shenandoah City.....	Turkey Run.....	West End.....	York Farm.....	Yorkville Tunnel.....	Coal Run.....	Furnace.....	Flowery Field.....
Miners on contract.....	140	61	.....	127	90	3	.....	2	20	40	34
Average daily wages.....	\$3 68	2 50	.....	4 78	3 00	7 17	.....	2 00	4 32	.....	2 33
Miners on wages.....	10	21	6	58	20	7	2	1	11	6	2
Average daily wages.....	\$2 29	2 37	2 00	2 17	2 25	2 38	2 04	1 33	2 77	.....	2 33
Outside laborers.....	41	7	*4	51	24	9	1	1	23	13	3
Average daily wages.....	\$1 81	1 75	75	1 69	1 67	2 05	1 50	1 25	1 94	.....	1 66
Inside laborers.....	36	22	*2	40	40	11	1	.....	26	15	3
Average daily wages.....	\$1 92	2 00	1 00	1 86	1 83	1 78	1 66	.....	2 11	.....	1 83
Outside mechanics.....	11	2	1	6	5	1	1	.....	7	5	1
Average daily wages.....	\$2 72	2 50	1 66	2 25	2 50	2 35	2 16	.....	2 58	.....	2 00
Inside mechanics.....	2	.....	.....	.....	1	.....	.....	.....	.....	.....	.....
Average daily wages.....	\$2 60	.....	.....	.....	2 50	.....	.....	.....	.....	.....	.....
Outside mule drivers.....	2	1	1	*6	7	.....	.....	*1	5	2	*1
Average daily wages.....	\$1 69	1 75	1 33	1 69	1 41	.....	.....	75	1 62	.....	83
Inside mule drivers.....	10	*7	.....	7	14	.....	.....	*1	*3	5	*4
Average daily wages.....	\$1 92	1 50	.....	1 86	1 83	.....	.....	1 00	1 40	.....	1 00
Weightmasters.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Average daily wages.....	2 00	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Dumpers.....	2	*4	.....	.....	.....	.....	.....	.....	.....	2	.....
Average daily wages.....	\$1 69	1 50	.....	.....	.....	.....	.....	.....	.....	.....	.....
Slate pickers.....	10	*32	.....	*50	*80	12	.....	*1	*50	36	*10
Average daily wages.....	\$1 55	81	.....	87	70	37½	.....	50	74	.....	58

Mining overseers	2	1	3	2	.....	.....	.....	.....	1	2	1
Average daily wages.	\$1 10	3 50	3 69	3 85	.....	.....	.....	.....	5 00	.....	3 00
Civil engineers .....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....
Average daily wages. ....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Number of boys	183	1	6	.....	.....	.....	.....	.....	5	4	.....
Average daily wages.	98	1 00	78	.....	.....	.....	.....	.....	95	75	.....
Average time in operation	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
during year	250 days,	200 days,	168 days,	11 mos.,	45 weeks,	7 mos.,	199 days,	11 mos.,	.....	10 mos.,	.....
Quantity in tons mined	136,730	59,873	67,850	86,062	1,424	746	36,550	49,921	.....	20,515	.....
Value in dollars	\$246,461	139,313	163,216	215,155	6,732	1,989	92,342	133,061	.....	46,158	.....
Other labor .....	.....	5	9	.....	.....	.....	.....	.....	.....	.....	.....
Average daily wages. ....	.....	2 80	2 28	.....	.....	.....	.....	.....	4	.....	.....
Total employed	349	170	363	284	14	43	5	94	138	2 58	61

* Boys.

† 70 are slato pickers, at 92 cents per day.

‡ In sinking slope.

COAL—ANTHRACITE. LABOR AND PRODUCTION—CONTINUED.

	SCHUYLKILL COUNTY.					DAUPHIN COUNTY.				
	White Oak	St. Clair	Ellsworth	Tunnel Ridge	West Lehigh Hickory Colliery	Lawrence	Columbia county—Centralia	Big Run	North Side Mountain	
Minors on contract		10	10	66	26	70	50	4	2	
Average daily wages		\$1 83	2 50	3 50	1 90		5 00	2 50	2 12	
Miners on wages	6		5	13	5		21	2	2	
Average daily wages	\$2 83		2 25	2 30	1 90	2 25	2 25	2 10	1 50	
Outside laborers	2		5	35	5	24	30	5	1	
Average daily wages	\$1 66		1 66	1 75		1 76 1/2	1 81	1 60	1 50	
Inside laborers	3	2	5	63	4	30	30	1		
Average daily wages	\$1 83		1 83	2 00		1 98	1 96	1 87		
Outside mechanics			1	4	2	6	4			
Average daily wages			\$2 00	2 50		2 73 1/2	2 85			
Inside mechanics							4			
Average daily wages		\$1					2 75			
Outside mule drivers		\$0 83		\$1	2		75	3		
Average daily wages		\$0 83		1 00			1 33	92		
Inside mule drivers		\$1 16	1	1 00	1	2	1 10	1	2	
Average daily wages		\$1 16	1 00	1 66		1 91 1/2	1 75	2 10		
Wheigh master										
Average daily wages										
Dumppers			1	3	1	1	2			
Average daily wages			\$1 66	1 75		1 66	2 00			
Shale pickers	11	\$3	\$8	\$70	12	\$91	\$81			
Average daily wages	\$ 25	30	63	75		95	83			

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COMPANIES FROM WHOM REPORTS HAVE BEEN RECEIVED.

COAL—SEMI-BITUMINOUS. LABOR AND PRODUCTION—Continued.

NAME OF COLLIERY.	Name of Operator, Superintendent or Manager.	Post office address.
Tioga county—		
Antrim.....	Fall Brook Coal Company.....	Watkins, New York.
Fall Brook.....	Fall Brook Coal Company.....	Watkins, New York.
Arnot.....	Blossburg Coal Company.....	Corning, New York.
Morris Run.....	Morris Run Coal Company.....	Syracuse, New York.
Westmoreland county—		
Westmoreland Shaft.....	Westmoreland Coal Company.....	Irwin.
Furnace.....	Everson, Macrum & Co.....	Scott Dale.
Latrobe.....	Morgan & Co.....	Latrobe.
Millwood Shaft.....	Millwood Coal and Coke Company.....	Millwood.
Saltsburg.....	Saltsburg Coal Company.....	Saltsburg.
Waverly Mines.....	Waverly Coal and Coke Company.....	Pittsburg.
Youghiogheny, Nos. 1, 2, 3 and 4.....	Penn Gas Coal Company.....	Irwin.
White Heath.....	Heath & White.....	West Newton.
Shafton.....	Shafton Coal Company.....	Shafton, or 305 Walnut street, Phila.
Yough National.....	J. W. Reed & Co.....	West Newton.
Washington county—		
Harlem.....	Harlem Coal Company.....	Monongahela City.
Dexter.....	Dexter Coal Company.....	Pike Run.
Midway.....	Taylor & Ulp.....	Midway.
Cliff.....	Miller & Greenhaigh.....	Coal Bluff.
Allison's.....	Jonathan Allison.....	Washington.
Isaac Leadbeter.....	I. Leadbeter & Co.....	Pike Run.
Reed's.....	J. W. Reed & Co.....	Pike Run.
Willow Valley.....	John Fee.....	Locust Hill.
Pike Run.....	Adam Sharf.....	East Bethlehem.
Pike Run.....	George Siddell.....	East Bethlehem.
Johnson's.....	R. V. Johnson.....	Cannonsburg.
Thompson's.....	John Cummins.....	Cannonsburg.
Flaniken's.....	J. D. Flaniken.....	Fredricktown.
Reed's.....	Thomas Redd.....	Lock No. 4.
Reed's.....	Abel Craft.....	Bentleysville.
Thompson's.....	H. Hornbake & Co.....	Pike Run.
Amadore.....	Robert Wintersgill.....	Fredricktown.
Crows.....	Crow and Sons.....	Allenport.

Philip Plummer's.....	Philip Plummer.....	West Middleton.
Yorty's Pike Run.....	Henry C. Yorty.....	East Bethlehem.
Ross'.....	William Ross.....	Washington.
Rogers'.....	Samuel W. Rogers.....	Beallsville.
Evans'.....	William Evans.....	Patterson's Mills.
Evans'.....	W. H. Evans.....	Cannonsburg.
Moore's.....	Alexander Moore.....	Locust Hill.
Magg's.....	William Maggs.....	Cannonsburg.
Pease & Catlen.....	Pease & Catlen.....	Clokey.
Hart's.....	John Hart & Sons.....	East Bethlehem.
Walnut Hill.....	Walnut Hill Coal Company.....	Midway.
Cassidy's.....	James Cassidy.....	Patterson's Mills.
Boon's.....	Boon Brothers.....	Houstonville.
Banfield's.....	John Banfield.....	Cannonsburg.
Neel's.....	J. S. Noel.....	Pike Run.
Centre county—		
Moshannon Coal Mines.....	Bellefonte and Snow Shoe Railroad Company.....	Bellefonte.
Clarion county—		
Mineral Ridge.....	Mineral Ridge Coal Company.....	Monterey.
Monterey.....	S. Sherwin & Son.....	Monterey.
Clearfield county—		
Reading.....	J. P. Hale & Co.....	Philipsburg.
Cuba.....	Perks & Parker.....	Philipsburg.
Webster.....	W. S. Thomas & Co.....	Philadelphia.
Laurel Run.....	Nuttall, Bacon & Co.....	Philipsburg.
Frauklin.....	Kittanning Coal Company.....	Houtzdale.
Beaver.....	Kittanning Coal Company.....	Osceola Mills.
Elk county—		
Connor Mines.....	James F. Caner.....	Earley.
Hancock.....	C. R. Early, (lessee).....	Earley.
Keystone.....	D. Eldridge.....	St. Mary's.
St. Mary's.....	St. Mary's Coal Company.....	St. Mary's.
Bradford county—		
Carbon Run Colliery.....	Schraeder Coal Company.....	Towanda.
Fall Creek Colliery.....	Fall Creek Bituminous Coal Company.....	Towanda.
Lycoming county.		
M'Intyre Colliery.....	M'Intyre Coal Company.....	M'Intyre.

COAL—SEMI-BITUMINOUS. LABOR AND PRODUCTION—CONTINUED.

NAME OF COLLIERY.	Name of Operator, Superintendent or Manager.	Post office address.
Fayette county— Henry Clay..... Home Coke Works..... Jackson Carson's..... Jackson Mines..... Morgan Mines..... Spring Grove..... Sterling..... Summit..... Frosts..... Buckeye..... Pittsburg and Connellsville.....	Frick & Co..... Sherrick, Rice & Co..... Jackson Carson, (for individual use)..... John M. Cochran & Co..... Morgan & Co..... Cochran & Keister..... Brown & Cochran..... Hurst, Moore & Co..... Thomas H. Frost..... John M. Cochran & Co..... Pittsburg and Connellsville Gas, Coal and Coke Co.....	Bradford. Scott Dale. Belle Vernon. Bradford. Bradford. Dawson. Dawson. Mt. Pleasant. Uniontown. Uniontown. Connellsville.
Fulton county— Wishart's.....	H. S. Wishart.....	Harrisonville.
Greene county— Ten Mile Valley..... Rhods' Coal Bank..... Webb Coal Bank.....	John Corbet..... James Rhods..... Wm. T. E. Webb.....	Clarksesville. Waynesburg. Waynesburg.
Armstrong county— Mahoning Mines..... Red Bank.....	Mahoning Coal Company..... Red Bank Mining Company.....	Mahoning. New Bethlehem.
Beaver county— American Cannel Coal..... Auburn..... Tod Mines..... Montgomery..... Beaver Gas Coal..... Nigger Hollow.....	J. F. Mansfield..... Auburn Coal Company..... Enon Valley Coal Company..... Brittain & Weyand..... Scott & Co..... Crisler, Green & Sons & Wilson.....	Cannellton. Rock Point. Beaver Falls. Shippingport. Rock Point. Shippingport.
Blair county— Pennington Shaft and Mines.....	Blair Iron and Coal Company.....	Pennington Furnace.

Cambria county—			
Blast Furnace and Rolling Mill Mines—			
Ben's Creek.....	Cambria Iron and Steel Company.....		Johnstown.
Lilley's.....	J. M. Curry & Co.....		Hen lock.
Lilley's.....	Jos. H. Dysart & Co.....		Hen lock.
Pleasant Valley.....	Mentzer & Rothrock.....		Hen lock.
Souman.....	John Bean.....		Johnstown.
South Fork.....	Dysart & Co.....		South Fork.
Long Seaford.....	J. Croyle & Co.....		
Tunnel Hill.....	Kittanning Coal Company.....		Gallitzin.
Lloyd's.....	Bell's Gap Railroad Company.....		
Mercer county—			
Crawford and Patterson Shaft.....	William Jones & Co.....		West Middlesex.
Black Diamond.....	J. Forker & Co.....		Sharon.
Lyle Mercer.....	Lyle Mercer.....		New Wilmington.
Cowden.....	Alexander Binney.....		New Wilmington.
Mogoffin's.....	D. C. Emery.....		Pine Grove.
Mt. Dick.....	Robert Dick.....		New Wilmington.
Smith.....	J. D. Risher.....		West Middlesex.
Walls.....	James Walls.....		Wolf Creek.
Douglass.....	Margaret Douglass.....		New Wilmington.
Greenville.....	Greenville Coal Company.....		Greenville.
Hickory.....	J. J. Spearman.....		Sharon.
Gough Bank.....	James Breckenridge.....		Pardoe.
Somerset county—			
Keystone.....	Keystone Coal and Manufacturing Company.....		Philadelphia.
Venango county—			
Wallace.....	C. E. Lytle.....		Franklin.
Huntingdon county—			
Dunbar.....	Richard Langdon.....		Huntingdon.
Fisher.....	Fisher Bros. & Miller.....		Huntingdon.
Mooredale.....	Reakirt Bros. & Co.....		Philadelphia.
Rebertsdale.....	Rock Hill Iron and Coal Company.....		Philadelphia.
Lawrence county—			
Beaver.....	Lee & Patterson.....		Rock Point.
Clinton.....	Clinton Coal Company.....		Rock Point.
South Wales.....	Wampum Coal Company.....		Wampum.

Jones, Simpson & Co.....	Jones, Simpson & Co.....	Olyphant.
Franklin.....	Franklin Coal Company.....	Hanover.
Warrior Run.....	A. J. Davis & Co.....	Wilkesbarre.
Roaring Brook.....	Roaring Brook Coal Company.....	Seranton.
Beaver Brook.....	Beaver Brook Coal Company.....	Hazleton.
Cross Creek, Woodside.....	Coxe Brothers & Co.....	
Lehigh and Wilkesbarre Coal Co.—Wilkes- barre Division:	Lehigh and Wilkesbarre Coal Company.....	Seranton.
Diamond, No. 1.....	do.....	do.
Kidder, No. 3.....	do.....	do.
Empire, No. 4.....	do.....	do.
Empire, No. 5.....	do.....	do.
Hartford, No. 6.....	do.....	do.
Sugar Notch Shaft, No. 9.....	do.....	do.
Sugar Notch Slope, No. 10.....	do.....	do.
Lance, No. 11.....	do.....	do.
Dodson, No. 12.....	do.....	do.
Gaylord, No. 13.....	do.....	do.
Nottingham, No. 15.....	do.....	do.
Reynolds, No. 16.....	do.....	do.
Hanover, No. 17.....	do.....	do.
Breaker, No. 18.....	do.....	do.
Breaker, No. 19.....	do.....	do.
Honeybrook Division:		
Breaker, No. 1.....	Lehigh and Wilkesbarre Coal Company.....	Seranton.
Breaker, No. 2.....	do.....	do.
Breaker, No. 4.....	do.....	do.
Breaker, No. 5.....	do.....	do.
Lehigh Division:		
Breaker, No. 4.....	Lehigh and Wilkesbarre Coal Company.....	Seranton.
Breaker, No. 5.....	do.....	do.
Breaker, No. 6.....	do.....	do.
Breaker, No. 8.....	do.....	do.
Breaker, No. 9.....	do.....	do.
Breaker, No. 10.....	do.....	do.
Nesquehoning.....	do.....	do.
Northumberland County—		
Bear Valley.....	A. A. Heim & Goodwill.....	Shamokin.
Ben Franklin.....	Douty & Baumgardner.....	Shamokin.
Black Diamond.....	William Schwenk and Jacob Geise.....	Mt. Carmel.
Cameron.....	Mineral Railroad and Mining Company.....	Shamokin.
Coal Ridge, No. 3.....	Burton Bros. & Company.....	Mt. Carmel.

COAL—ANTHRACITE. LABOR AND PRODUCTION—CONTINUED.

NAME OF COLLIERY.	Name of Operator, Superintendent or Manager.	Post office address.
Northumberland county—Continued—		
Enterprise.....	Enterprise Coal Company.....	Shamokin.
Excelsior.....	Excelsior Coal Mining Company.....	Excelsior.
Franklin.....	Lovel, Booth & Elms.....	Shamokin.
Geo. Pales.....	A. A. Hein & Goodwill.....	Shamokin.
Locust Gap.....	Gruber, Kemple & Co.....	Locust Gap.
Greenback.....	Guterman & Gorman.....	Shamokin.
Henry Clay.....	J. Langdon & Co.....	do.
Hickory Ridge.....	Mineral Railroad and Mining Company.....	do.
Hickory Swamp.....	do.....	do.
Luke Fidler.....	do.....	do.
Morton.....	Thomas & Robert Morton.....	do.
Stewartville.....	William Montelius.....	Mt. Carmel.
Royal Oak.....	George Tillett & Sons.....	Shamokin.
Schuylkill county—		
Bear Run.....	Wiggin & Triebels.....	St. Nicholas.
Beaver Run.....	Powman, Breish & Hale.....	Mahanoy City.
Big Mine Run.....	Jeremiah Taylor & Co.....	Ashland.
Black Heath.....	Wm. H. Harris.....	Minersville.
Boyce Baltimore.....	James Boyce.....	Silver Creek.
Cambrian.....	Cleaver and Glenwright.....	Ashland.
Colket.....	Owen, Eckel & Colket.....	Donaldson.
Cuyler.....	S. M. Heaton & Co.....	Raven Run.
Delano.....	Samuel Atkinson.....	Mahanoy City.
Diamond.....	Charles Berluchy & Co.....	Wadesville.
Diamond.....	Hadesty & Collier.....	Ashland.
East Mahanoy.....	Focht, Whiakor & Co.....	Mahanoy City.
Enterprise.....	J. R. Cleaver & Co.....	Ashland.
Eureka.....	Owen, Eckel & Colket.....	Donaldson.
Girard.....	Theodore Garretson.....	Girardville.
Gilberton.....	Gilberton Coal Company.....	Gilberton.
Hillside.....	Hillside Coal and Iron Company.....	Pleasant Valley.
Kalnia.....	Phillips & Shaefer.....	Valley.
Keeley's Run.....	Thomas Coal Company.....	South Williams.
Kemble.....	Thomas H. Kemble.....	Shenandoah City.
Kentucky.....	Schall & Donahoe.....	Tremont.
		Tuscarora.

Koh-i-noor.....	Richard Hecksher & Co.....	Shenandoah City.
Primrose.....	Calob B. Knevals, trustee.....	Mahanoy City.
Sharp Mountain	Joseph R. Wood.....	Pottsville.
Shenandoah City.....	James Neil, trustee.....	Shenandoah City.
Turkey Run.....	Haas, Brenizer & Co.....	Shenandoah City.
West End.....	Owen, Eckel & Colket.....	Donaldson.
York Farm.....	Job Rich.....	West West.
Yorkville Tunnel.....	Bitheliser & Waechter.....	Pottsville.
Coal Run.....	Suffolk Coal Company.....	St. Nicholas.
Furnace.....	Atkins Brothers.....	Gilberton.
Flowery Field.....	Joseph H. Denning & Co.....	Newcastle.
White Oak.....	William Denning.....	West Newcastle.
St. Clair.....	Adam Jackson & Co.....	St. Clair.
Ellsworth.....	John R. Davis.....	Minersville.
Tunnel Ridge.....	George W. Cole.....	Mahanoy.
West Lehigh Hickory Colliery.....	J. C. Winlack.....	Middleport.
Lawrence.....	Lawrence, Merkle & Co.....	Prackville.
Columbia county—		
Centralia.....	G. M. Prevost.....	Centralia.
Dauphin county—		
Big Run.....	James Fennel.....	Wisconsin.
North Side mountain.....	Edward Miller.....	Lykens.

I am indebted to the *Daily Patriot* of December 7, 1875, for the following table :

LYKENS VALLEY COAL TRADE.

Amount of coal transported over the Summit Branch railroad for the week ending November 27, 1875 :

	WEEK.	YEAR.
Big Lick	1,491.05	65,597.07
November 30.....	646.17	66,244.04
Last year.....	1,950.16	101,019.13
November 30.....	338.01	102,357.14
Increase November 30	308.16	.....
Decrease.....	468.11	35,422.06
November 30.....	.....	35,113.10
Williamstown.....	4,930.05	289,837.11
November 30.....	2,040.11	290,878.02
Last year.....	2,667.05	226,142.07
November 30.....	81.05	226,223.12
Increase.....	2,263.00	62,695.04
November 30.....	1,959.06	64,654.10
Short Mountain.....	3,099.09	151,149.06
November 30.....	1,239.14	152,379.00
Last year.....	542.01	125,774.09
November 30.....	.....	.....
Increase.....	2,557.08	25,374.17
November 30.....	1,229.14	26,604.11
Total amount	9,520.19	505,584.04
November 30.....	3,917.02	506,501.06
Last year.....	5,169.02	452,936.09
November 30.....	419.06	453,355.15
Increase.....	4,351.17	52,647.15
November 30.....	3,497.16	56,145.11

We give in our table this week the complete coal shipments of this region for the year ending November 30, ultimo. Work has been continued uninterruptedly since the opening of trade in the spring, and the result is unprecedented in the amount of coal shipped from our mines. The increase over last year is 56,145 $\frac{1}{2}$ tons.

COAL TONNAGE of the Philadelphia and Reading Railroad, for the year ending November 30, 1875.

WEEK ENDING SATURDAY.		Passing over mainline and Lebanon Valley Branch.....	Passing over laterals for shipment by Sch. canal.....	Ship'd west via Northern Central railway and Catawissa and Williamspt Branch,	Ship'd west and south from Pine Grove....	Consumed on laterals.	Lehigh and Wyoming coal.....	Total anthracite paying freight.....	Bituminous coal.....
December	5, 1874.....	48,667.05	3,946.05	2,155.02	2,876.16	3,175.04	10,447.01	71,267.13	3,241.05
	12, 1874.....	66,072.07	1,854.06	3,685.13	3,218.14	3,190.16	11,018.06	89,040.02	4,069.15
	19, 1874.....	66,236.12	.....	3,276.01	2,265.13	4,385.03	14,135.03	90,298.12	3,921.17
	26, 1874.....	50,292.03	.....	2,417.18	944.01	2,244.02	8,181.05	64,079.09	3,099.16
January	2, 1875.....	40,495.15	.....	3,169.08	592.07	3,160.13	10,957.08	58,845.11	1,690.03
	9, 1875.....	2,685.13	.....	2,262.02	10.16	693.12	703.09	6,358.12	2,324.14
	16, 1875.....	1,767.05	.....	4,166.13	.....	1,742.09	436.08	8,112.15	2,537.04
	23, 1875.....	4,158.16	.....	3,763.10	334.15	2,236.14	772.11	11,266.06	3,602.17
	30, 1875.....	5,457.00	.....	4,392.07	280.05	3,189.04	3,103.09	16,422.05	4,411.07
February	6, 1875.....	4,546.00	.....	2,238.02	180.11	2,741.19	3,100.19	12,877.11	4,235.03
	13, 1875.....	8,736.00	.....	2,807.18	702.07	1,856.18	2,356.18	16,460.01	3,697.00
	20, 1875.....	11,072.14	.....	4,010.04	853.16	2,208.03	1,849.15	19,994.12	5,476.13
	27, 1875.....	13,625.12	.....	5,301.13	1,600.00	2,641.11	2,283.05	25,452.01	9,125.00
March	6, 1875.....	12,635.02	.....	1,988.13	1,026.16	2,348.13	2,647.14	20,646.15	4,965.14
	13, 1875.....	15,769.19	.....	3,157.03	1,237.10	2,274.00	4,232.07	26,670.19	4,961.14
	20, 1875.....	19,160.15	.....	3,865.00	1,053.00	1,877.61	3,880.05	29,836.01	6,849.16
	27, 1875.....	8,577.07	.....	4,604.02	1,965.15	1,684.18	4,850.08	20,782.10	7,361.09
April	3, 1875.....	8,885.16	.....	2,779.07	1,268.04	2,406.01	5,308.00	20,600.08	5,293.05
	10, 1875.....	11,439.07	.....	4,189.02	714.02	1,948.14	4,377.02	22,668.07	7,040.01
	17, 1875.....	17,021.13	.....	896.09	1,324.06	1,949.16	4,641.14	25,333.18	5,124.14
	24, 1875.....	20,749.15	58.00	668.05	1,281.12	2,296.03	6,073.14	30,726.08	4,651.17
May	1, 1875.....	26,823.14	462.01	804.16	1,123.17	1,193.09	5,882.08	37,965.18	6,404.05
	8, 1875.....	22,057.06	1,045.13	1,134.04	1,142.08	1,463.12	4,783.14	32,225.08	5,009.10
	15, 1875.....	24,177.09	1,190.02	2,565.19	1,397.08	1,168.02	3,887.14	35,578.04	5,218.17
	22, 1875.....	23,352.01	2,766.18	2,817.11	1,193.17	1,761.02	3,045.14	30,964.14	5,944.08
	29, 1875.....	20,404.02	2,016.02	2,528.00	1,209.14	883.15	4,133.14	36,602.08	4,479.16
June	5, 1875.....	23,164.12	1,880.03	6,550.04	1,990.00	833.15	3,145.14	38,500.05	5,318.01
	12, 1875.....	28,881.13	2,325.05	4,197.04	1,360.01	839.02	3,896.17		

COAL TONNAGE—CONTINUED.

WEEK ENDING SATURDAY.	Passing over main line and Lebanon Valley Branch.....	Passing over laterals for shipment by Sch. canal.....	Ship'd west via Northern Central railway and Catawissa and Williamsport Branch.	Ship'd west and south from Pine Grove....	Consumed on laterals.	Lehigh and Wyoming coal.....	Total anthracite paying freight.....	Bituminous coal.....
June	39,919.18	3,327.10	4,202.12	1,484.03	754.03	1,721.08	51,409.14	6,169.09
26, 1875.....	82,639.16	16,037.04	3,565.11	1,444.05	1,385.14	245.18	107,818.08	5,114.05
July	113,902.19	23,639.12	4,768.19	1,581.01	1,717.17	232.11	145,842.19	4,558.06
3, 1875.....	96,570.06	23,621.05	7,116.04	1,604.04	1,388.13	3,953.13	134,254.05	2,745.07
10, 1875.....	115,299.02	34,837.05	9,206.02	2,605.10	1,541.00	13,551.06	176,540.05	2,624.13
17, 1875.....	124,145.04	35,074.15	8,465.02	2,404.00	1,491.10	15,810.04	190,390.15	3,257.16
24, 1875.....	123,135.00	37,221.14	13,616.17	2,515.10	1,742.02	17,171.02	195,402.05	2,638.07
31, 1875.....	127,136.00	22,370.18	7,659.05	1,719.13	1,742.02	16,452.02	177,218.13	2,805.10
August	121,939.13	34,726.06	9,531.17	1,880.15	2,045.14	14,125.08	181,919.14	3,784.13
14, 1875.....	111,781.17	30,105.12	8,962.14	2,613.12	2,150.19	11,080.01	166,694.15	3,115.16
21, 1875.....	120,561.19	34,149.06	8,884.13	2,633.10	2,575.06	11,791.03	174,595.17	4,037.18
28, 1875.....	124,948.11	27,552.09	6,796.00	2,272.11	2,691.17	14,079.17	178,341.05	3,352.16
September	128,668.17	26,269.16	7,413.14	2,694.19	2,222.04	12,199.07	179,468.17	3,285.14
11, 1875.....	112,105.15	39,250.13	7,245.19	2,659.14	2,849.01	13,176.19	177,288.01	3,466.15
18, 1875.....	109,181.05	37,828.03	8,639.07	2,868.07	3,780.09	16,241.01	178,538.12	3,660.10
25, 1875.....	128,782.11	30,816.14	7,059.18	2,804.65	3,568.13	16,629.10	185,100.07	4,018.19
October	119,750.04	31,815.07	7,059.18	2,908.06	3,894.17	15,937.16	184,366.08	3,753.16
16, 1875.....	119,137.13	35,220.04	7,239.12	3,076.08	3,770.07	17,182.14	185,626.18	4,460.09
23, 1875.....	122,654.19	33,905.15	7,784.19	2,765.07	3,790.03	13,925.19	186,227.02	3,757.14
30, 1875.....	130,893.17	29,651.17	8,023.06	2,812.05	3,526.04	16,808.02	191,715.11	4,308.06
November	62,930.07	23,553.00	6,362.13	2,874.09	3,360.09	13,338.02	111,419.00	4,437.08
6, 1875.....	116,180.17	40,163.11	7,942.15	2,981.03	4,317.12	14,709.06	188,295.04	3,781.00
13, 1875.....	112,707.02	34,464.06	7,493.02	2,699.02	3,876.08	11,326.09	172,566.09	3,173.03
20, 1875.....	104,653.12	26,221.11	4,171.18	2,355.15	3,215.01	11,230.18	151,848.15	2,866.03
27, 1875.....	39,016.07	11,806.09	1,735.07	887.01	1,280.00	4,555.16	59,331.00	1,202.13
30, 1875.....								
Total.....	3,309,957.04	740,705.17	266,279.10	91,286.12	122,061.12	434,633.08	4,964,324.05	225,881.04

COAL TONNAGE—CONTINUED.

WEEK ENDING SATURDAY.	COAL FOR COMPANY'S USE.			Total of all kinds paying freight.....	COAL FOR COMPANY'S USE.			Total of all kinds for week.....	Total to date.....	Tonnage on Schuylkill canal.....	Total Schuylkill canal tonnage to date.....
	Anthracite.....	Bituminous....	Total.....		Anthracite.....	Bituminous....	Total.....				
December	5, 1874.....	74, 508.18	2, 669.10	112.09	2, 781.19	77, 290.17	77, 290.17	5, 483.00	5, 483.00	5, 483.00	5, 483.00
	12, 1874.....	93, 109.17	5, 257.02	169.08	5, 426.10	98, 536.07	175, 827.01	8, 834.13	8, 834.13	8, 834.13	8, 834.13
	19, 1874.....	94, 220.09	11, 222.03	76.13	11, 298.16	105, 519.05	281, 346.09	8, 869.13	8, 869.13	8, 869.13	8, 869.13
January	26, 1874.....	67, 179.05	9, 782.04	213.09	9, 995.13	77, 174.18	358, 521.07	35.00	358, 521.07	35.00	358, 521.07
	2, 1875.....	60, 035.14	11, 796.19	66.15	11, 863.14	71, 899.08	430, 420.15		430, 420.15		430, 420.15
	9, 1875.....	8, 083.06	845.12	115.18	961.10	9, 644.16	440, 065.11		440, 065.11		440, 065.11
	16, 1875.....	10, 649.19	508.13	255.04	763.17	14, 413.16	451, 479.07		451, 479.07		451, 479.07
	23, 1875.....	14, 869.03	351.02	176.02	527.04	15, 396.07	468, 875.14		468, 875.14		468, 875.14
February	30, 1875.....	20, 833.12	341.14	182.03	523.17	21, 357.09	488, 233.03		488, 233.03		488, 233.03
	6, 1875.....	17, 112.14	419.04	65.10	481.14	21, 357.09	509, 590.11		509, 590.11		509, 590.11
	13, 1875.....	20, 157.01	895.16	57.03	952.19	21, 110.00	526, 940.11		526, 940.11		526, 940.11
	20, 1875.....	25, 471.05	1, 839.06		1, 839.06	27, 310.11	554, 251.02		554, 251.02		554, 251.02
March	27, 1875.....	34, 577.01	3, 018.09		3, 018.09	37, 595.10	591, 846.12		591, 846.12		591, 846.12
	6, 1875.....	25, 612.09	1, 717.14	63.16	1, 781.10	27, 333.19	619, 180.11		619, 180.11		619, 180.11
	13, 1875.....	31, 632.13	2, 480.03		2, 480.03	35, 032.12	654, 273.03		654, 273.03		654, 273.03
	20, 1875.....	36, 085.17	3, 990.09	919.16	3, 999.19	41, 811.02	696, 084.05		696, 084.05		696, 084.05
April	27, 1875.....	28, 143.19	1, 590.01	1, 134.16	3, 273.07	31, 417.06	727, 501.11		727, 501.11		727, 501.11
	3, 1875.....	25, 933.13	1, 981.17	2, 505.00	4, 487.06	30, 420.19	757, 922.10		757, 922.10		757, 922.10
	10, 1875.....	29, 708.11	1, 470.00	2, 975.13	4, 445.13	34, 154.04	792, 076.14		792, 076.14		792, 076.14
	17, 1875.....	30, 781.12	1, 690.18	2, 725.04	4, 419.02	35, 200.14	827, 277.08		827, 277.08		827, 277.08
May	24, 1875.....	35, 851.02	1, 798.02	2, 093.11	3, 891.13	39, 742.15	867, 020.03		867, 020.03		867, 020.03
	4, 1875.....	42, 617.15	3, 068.16	1, 866.17	4, 955.13	47, 553.08	914, 573.11		914, 573.11		914, 573.11
	11, 1875.....	38, 629.13	4, 822.18	2, 538.00	7, 360.18	45, 990.11	960, 564.02	514.00	960, 564.02	514.00	960, 564.02
	18, 1875.....	40, 587.14	6, 074.01	2, 439.00	7, 513.02	48, 100.16	1, 008, 664.18	714.10	1, 008, 664.18	714.10	1, 008, 664.18
	24, 1875.....	40, 704.10	6, 742.11	1, 357.13	8, 100.04	48, 804.14	1, 057, 469.12	1, 125.00	1, 057, 469.12	1, 125.00	1, 057, 469.12
June	2, 1875.....	36, 909.02	3, 526.12	1, 320.07	8, 846.19	40, 756.01	1, 098, 225.13	2, 085.00	1, 098, 225.13	2, 085.00	1, 098, 225.13
	5, 1875.....	41, 082.04	1, 569.04	171.10	1, 740.14	42, 822.18	1, 141, 048.11	1, 983.10	1, 141, 048.11	1, 983.10	1, 141, 048.11
	12, 1875.....	43, 848.06	1, 083.19	22.10	1, 106.09	44, 924.15	1, 185, 973.06	2, 352.10	1, 185, 973.06	2, 352.10	1, 185, 973.06
								2, 019.00		2, 019.00	

COAL TONNAGE—CONTINUED.

WEEK ENDING SATURDAY.	COAL FOR COMPANY'S USE.			Total of all kinds paying freight.....	Total of all kinds for week			Tonnage on Schuylkill canal.....	Total Schuylkill canal tonnage to date.....
	Anthracite	Bituminous.....	Total.....						
June	19, 1875.....	119.10	2, 660.09	57, 579.03	60, 239.12	1, 246, 212.18	1, 911.10	1, 911.10	21, 524.13
July	26, 1875.....	10, 697.06	10, 697.06	112, 432.13	123, 129.19	1, 369, 342.17	9, 710.00	9, 710.00	34, 234.13
	3, 1875.....	5, 822.10	5, 822.10	150, 401.05	156, 223.15	1, 525, 556.12	27, 564.00	27, 564.00	58, 798.13
	10, 1875.....	6, 033.16	6, 033.16	136, 999.12	143, 033.08	1, 668, 600.00	20, 632.17	20, 632.17	79, 431.10
	17, 1875.....	179, 164.18	7, 622.05	179, 164.18	186, 787.03	1, 855, 387.03	30, 130.10	30, 130.10	109, 562.00
August	24, 1874.....	193, 648.11	8, 000.06	193, 648.11	201, 648.17	2, 057, 036.00	39, 222.00	39, 222.00	148, 784.00
	31, 1875.....	198, 040.12	7, 814.19	198, 040.12	205, 855.11	2, 262, 891.11	41, 980.06	41, 980.06	190, 764.06
	7, 1875.....	180, 024.03	7, 944.02	180, 024.03	187, 968.05	2, 450, 859.16	20, 055.00	20, 055.00	210, 819.06
	14, 1875.....	188, 704.07	8, 430.15	188, 704.07	197, 135.02	2, 647, 994.18	30, 747.00	30, 747.00	241, 536.06
September	21, 1875.....	169, 810.11	7, 202.01	169, 810.11	177, 012.12	2, 825, 007.10	34, 291.00	34, 291.00	275, 827.06
	28, 1875.....	178, 633.15	7, 591.15	178, 633.15	186, 225.10	3, 011, 233.00	28, 420.02	28, 420.02	303, 247.08
	5, 1875.....	181, 694.01	7, 603.12	181, 694.01	189, 392.13	3, 200, 625.15	39, 429.15	39, 429.15	335, 677.03
	11, 1875.....	182, 754.11	8, 016.13	182, 754.11	190, 771.04	3, 391, 396.19	25, 063.15	25, 063.15	360, 770.18
October	18, 1875.....	180, 754.16	7, 919.11	180, 754.16	188, 894.00	3, 580, 290.19	38, 752.03	38, 752.03	399, 523.01
	25, 1875.....	182, 199.02	8, 396.14	182, 199.02	190, 763.06	3, 771, 054.05	37, 274.00	37, 274.00	436, 797.01
	2, 1875.....	189, 119.06	8, 063.03	189, 119.06	197, 370.02	3, 968, 424.07	33, 985.10	33, 985.10	470, 782.11
	9, 1875.....	185, 120.04	8, 012.19	185, 120.04	193, 208.02	4, 161, 722.09	32, 486.00	32, 486.00	503, 268.11
November	16, 1875.....	189, 087.07	7, 630.12	189, 087.07	199, 012.15	4, 360, 755.04	33, 944.00	33, 944.00	537, 209.11
	23, 1875.....	189, 984.16	7, 630.12	189, 984.16	197, 864.03	4, 558, 599.07	33, 633.10	33, 633.10	570, 843.01
	30, 1875.....	196, 023.17	10, 289.04	196, 023.17	206, 402.09	4, 765, 001.16	30, 722.00	30, 722.00	601, 505.01
	6, 1875.....	115, 856.08	3, 948.12	115, 856.08	120, 034.16	4, 885, 036.12	22, 751.00	22, 751.00	624, 316.01
December	13, 1875.....	190, 076.04	8, 117.05	190, 076.04	198, 594.19	5, 083, 631.11	37, 061.10	37, 061.10	661, 377.11
	20, 1875.....	175, 739.12	8, 969.19	175, 739.12	185, 153.14	5, 268, 784.05	34, 748.00	34, 748.00	693, 125.11
	27, 1875.....	154, 714.18	12, 794.10	154, 714.18	167, 692.19	5, 436, 477.04	28, 127.10	28, 127.10	726, 253.01
	30, 1875.....	60, 553.13	8, 324.02	60, 553.13	68, 977.12	5, 505, 454.16	9, 441.00	9, 441.00	734, 694.01
Total.....	5, 190, 205.09	288, 048.15	315, 249.07	5, 190, 205.09	5, 505, 454.16	.....	734, 694.01	734, 694.01	.....

COAL DELIVERED ON MAIN LINE, BRANCHES AND LATERALS.

STATIONS.	ANTHRACITE.						BITUMI- NOUS.	
	From Pt. Carbon	From Mount Carbon	From Schuylkill Haven.	From Pinegrove	From Tamaqua	Lykens Valley & Lehigh.		Total.	From Harrisburg &c.
St. Clair						165.08	165.08	11.04
Mahanoy City								12.16
Trenton								11.05
Minersville								1,685.13
Port Carbon						1,330.17	1,330.17	23.19
Ashtand								1,177.06
Tamaqua					829.04	322,421.17	829.04	257.13
Catawissa & Williamsport Branch, Ringgold					14,514.06	683.05	322,421.17	
Jonestown	22.11			13,198.15			13,197.11	
Union Forge				343.02			343.02	
Mifflin				12.16			12.16	
Dauphin	284.04			532.08			836.12	
Pinegrove	81.01	50.00	4.11				135.18	
Pottsville						149.14	149.14	6,371.00
Schuylkill Haven							146.13	
Landingville	642.12	138.10	537.12	15.00			1,333.14	
Auburn	321.15	189.10	622.01	874.06			2,207.12	
Port Clinton	4.13	13.03	13.03	16.14	725.14		773.07	71.13
Hamburg	720.17	146.04	1,389.11	135.69	90.18		2,482.19	836.05
Shoemakersville	88.01	41.05	1,174.07	49.10	48.08		401.11	10.03
Mohrsville	597.00	4.19	655.02		286.16		1,543.17	
Leesport	3,350.12	47.05	874.13	63.19	788.05		5,124.14	78.14
Tuckertown	304.14		229.69		10.10		536.13	
Reading	61,697.05	7,522.14	34,165.17	7,979.04	12,462.00	8,263.15	132,090.15	20,661.11
Berks and Lehigh Branch	2,621.03	69.06	811.09	9.19	1,159.15	1,513.14	6,185.06	
East Pennsylvania Branch	28,156.13	1,283.19	16,418.00	1,911.19	24,438.06	18,980.04	91,169.01	22,598.02
Reading and Columbia railroad .. <i>Lebanon Valley Branch:</i>	59,568.03	2,023.07	47,768.17	24,194.15	12,996.00	81.18	146,633.00	96.13
Sinking Spring	1,492.16	156.14	433.11	396.01	327.00		2,806.02	23.12
Wernersville	906.13	15.14	476.07	262.08	391.12		2,652.14	46.09
Robesonia	5,179.02	124.09	619.02	462.13	3,075.12	947.09	10,407.18	34.11

Branch.....	122,286.04	2,047.11	72,306.12	10,190.17	42,534.10	19,283.12	268,659.06	.....	12,419.10
via Belmont.....	100,049.16	2,924.01	50,782.02	12,310.10	36,244.04	370.02	202,680.15	.....	2,514.05
via Columbia Bridge.....	80,090.00	2,061.07	67,023.04	5,750.01	22,426.03	31,358.08	208,709.03	.....	9,681.15
via Richmond Branch.....	61,804.00	13,917.16	105,316.19	13,594.00	19,221.01	2,284.03	216,117.19	.....	11,780.06
Richmond, for shipment.....	564,603.18	58,166.14	736,255.19	151,524.18	198,733.16	4,673.06	.....	923,850.13	.....
Total Main Line and Branches	1,273,909.19	101,804.14	1,246,721.16	328,268.15	444,985.10	439,586.10	.....	1,713,978.11	8,290.05
Passing over laterals for shipment								3,835,277.04	225,881.04
By Schuylkill Canal.....	303,821.16	27,287.11	311,303.07	176.04	98,116.19	.....	.....	740,705.17	.....
Shipped west via Cal. & Wmsp't			*259,091.03	.....	.....	.....	.....	265,279.10	.....
Branch, and N. C. R. W.....	45,646.01	11,967.03	30,822.19	4,257.00	29,268.11	.....	.....	122,061.14	.....
Consumed on laterals.....	107,220.11	4,876.18	111,795.16	422.17	33,990.16	10,305.12	.....	288,048.15	27,200.12
For Company's use.....								.....	.....
Total Main Line br., laterals, &c...	1,730,598.07	145,936.06	1,959,735.01	333,224.16	606,331.16	455,892.02	20,624.12	5,252,373.00	253,081.16
Add bituminous.....								253,081.16	.....
Total of all, tons of 2,240 lbs.....								5,505,454.16	.....

*Via Shamoken, 227,715.08, via Locust Gap, 31,375.15.

†Shipped west via Tamamend.

COKE.

BY JOHN FULTON, E. M.
General Mining Engineer, C. I. Company, 1875.

ON THE METHODS OF COKING COAL FOR FURNACE USE; ITS EFFICIENCY AND ECONOMY AS COMPARED WITH ANTHRACITE COAL IN THE METALLURGY OF IRON.

The State of Pennsylvania occupies the leading position in the production of pig iron, and in the magnitude and variety of its allied industries.

The ores of iron, the fuels and fluxes have been so liberally deposited in the Commonwealth, as early to invite efforts in iron making, and to stimulate it until it has attained its present large proportions and momentum of progress.

With the clearing of the forests the period of charcoal, as a furnace fuel, must soon pass away. The attention of iron makers, at the present, is mainly given to three varieties of mineral fuel: Anthracite coal, coke from bituminous and semi-bituminous coal, and the dry or block coal of Mercer county.

Anthracite coal is a natural coke, produced under immense pressure, presenting the most dense and compact fuel known. It has, however, some disadvantages, as the purest variety decrepitates to such an extent in the blast furnace as to impede the blast, and hence cannot be used advantageously.

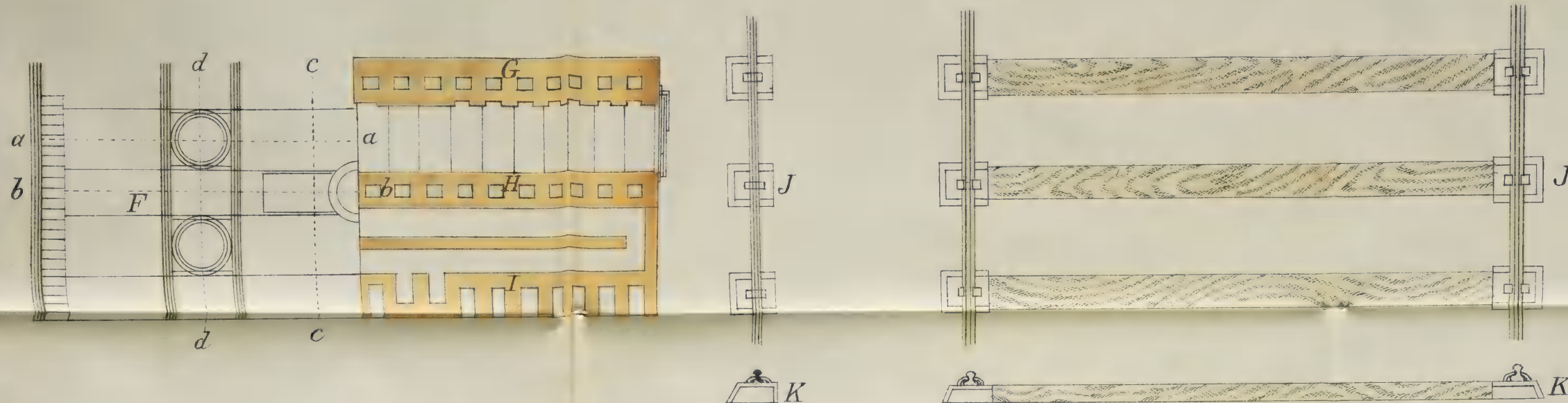
A second class, somewhat banded with slate, is found more tenacious and is generally used as a furnace fuel.

The chief supply of this coal in the State, or United States, is found in the Schuylkill, Lehigh and Wilkesbarre districts, aggregating 472 square miles of coal measures.

From the limited supply of this fuel, and its constant increase in domestic uses, it is evident that its enhanced price will restrict its use to the furnaces on the Lehigh, Schuylkill, and a few other favored localities.

It is also manifest that coke is destined to become the leading fuel for blast furnaces; and to retain this position from its almost inexhaustable source of supply, its calorific efficiency, and its continued economy.

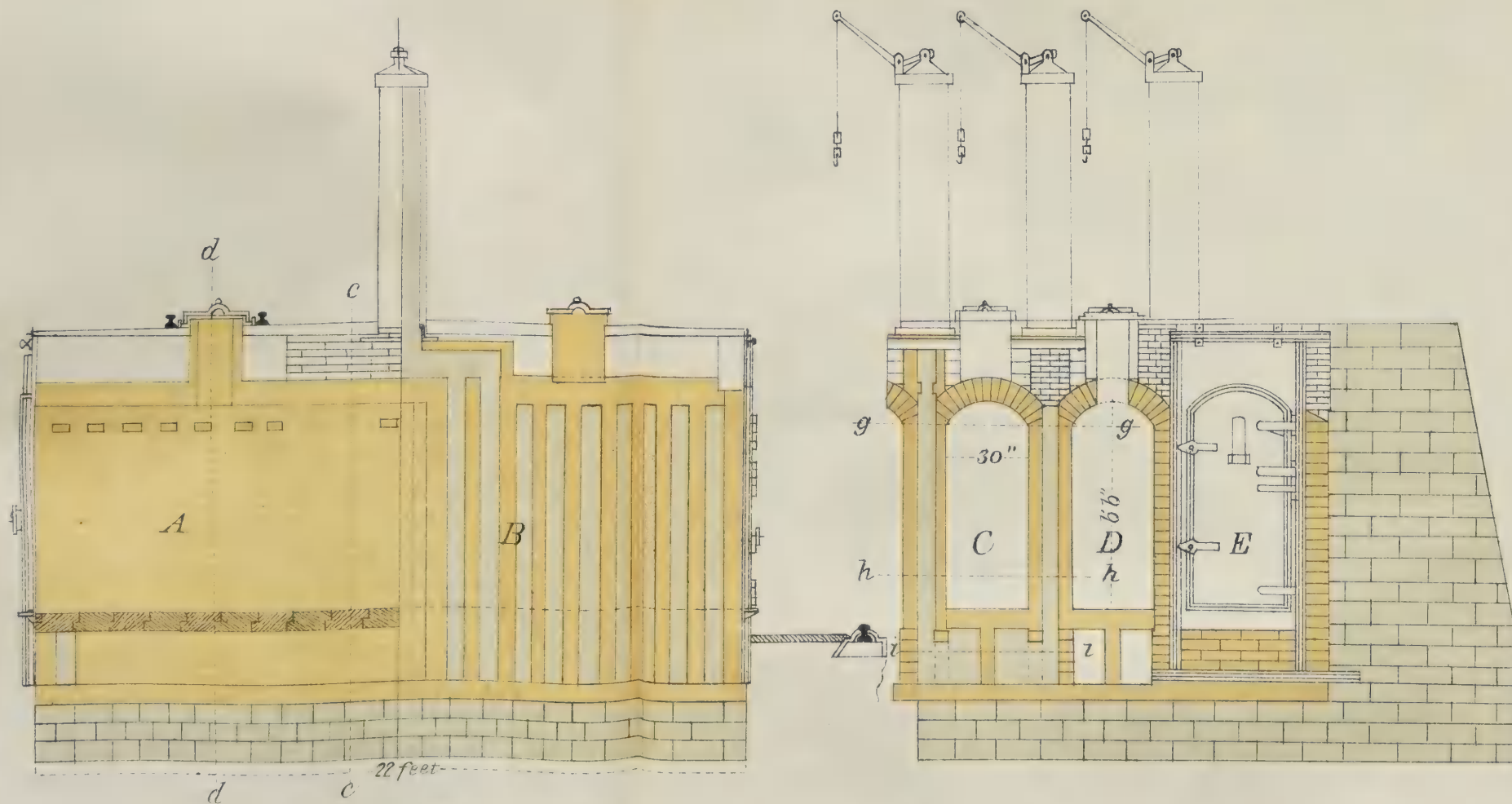
The north-eastern portion of the Appalachian coal field covers the western portion of the State, from the Allegheny mountain crest line to the western border, breaking up in the northern counties, into a number of terminal fingers and detached coal fields.



No 2

REFERENCE

- A Section through a-a
- B " " b-b
- C " " c-c
- D " " d-d
- E End Elevation.
- F Plan of Top of Ovens.
- G " " Section through g-g
- H " " " " h-h
- I " " " " i-i
- J " " Pusher Track
- K Elevation of Pusher Track.



J. KING McLANAHAN'S IMPROVED COKE OVEN.

Scale $\frac{3}{16}$ in. to 1 Foot

Hollidaysburg Penna.

The Broad Top region is an eastern outlying basin of coal.

The whole bituminous and semi-bituminous area of the State is over 12,000 square miles.

The area of the dry block coals of Mercer county is quite limited, embracing one workable seam, but the coal has an important place as a furnace fuel in the extensive iron works of western Pennsylvania and eastern Ohio.

As anthracite and the dry burning coals of Mercer county require no special preparation for use in smelting furnaces, the principal inquiry will be directed to the typical methods of coking coal as now practiced in this State.

In all coking operations the work to be accomplished is to expel the gaseous elements of the coal, retaining the carbon and ash which constitute the coke.

It is thus evident that the quantity of coke obtained from any coal cannot exceed the sum of its carbon and ash.

On the other side it is rarely found that coke can be made without the loss of several units of carbon, depending upon the quality of the coal and the method of coking it.

The minimum loss of carbon should be made in coals having a large volume of hydrogenous matter—in other words, holding a sufficient amount of gaseous product to supply the necessary heat for the operation of coking without using any of the carbon.

The maximum loss of carbon would result in coking a dry coal, or one holding a small percentage of gaseous matter, thus requiring the burning of carbon to supply the necessary heat.

These considerations lead in the outset to an inquiry into the requisite qualities in a good coal for coking.

It might be expected that all the bituminous and semi-bituminous coals would produce good coke. That such is not the fact is now becoming clear to those interested in this industry. The difficulty hitherto in getting light on the requirements of a good coking coal, and the principles of coking it, consisted in the loose statements of the advocates of the several kinds of ovens, who seemed determined to make *them* the prime elements in governing the quantity and quality of the coke produced. The quality of the coal used, or contemplated to be used, being regarded as an unimportant factor in this consideration.

There is, doubtless, great economy in the use of proper ovens in coking coal, but under all this the character of the coal is the prime factor in determining the quantity, quality and structure of the coke. And this is true, whether the coal is coked in the most improved oven, or in the primitive open air "pits or mounds."

The value of ovens is confined rigidly to the economy of labor in the process of coking, and in the saving of carbon.

Blast furnaces demand the fuel to be pure, compact, tenacious, of uniform quality, and as free from moisture as possible.

It is evident that the calorific power of coke is derived from its carbon, and hence, the purest coke will produce the greatest heat. This requirement of pure dry coke is the more evident, when it is considered, that all foreign matter and moisture not only do not contribute heat, but require the expenditure of it in disposing of the extraneous matter in the slag and vaporizing the moisture.

It is manifest, that as the character of the coke is determined by the quality of the coal used, the latter should receive very careful examination before expending largely in plant for coking.

The first requirement in the production of good coke, is a pure semi-bituminous coal. Coal having small quantities of slate, sulphur or phosphorus.

The second requirement is, that it contains a sufficient proportion of volatile or gaseous matter to supply the necessary heat in coking without the expenditure of carbon.

And, thirdly, that the coal produces a coke of sufficient tenacity to sustain, without crumbling, the burden and blast of the furnace, and to inherit an open cellular structure to facilitate its impregnation and solution by the carbonic acid gas in the furnace.

Three belts of semi-bituminous coal have been thoroughly tested in the production of coke for blast furnaces. The Connellsville coke region in the west of this State; Bennington, on the crest of the Allegheny mountain, and the outlying coal field of Broad Top, in the east.

The Connellsville coke region, in Fayette county, embraces a zone twenty-five miles long by two and a half to three miles wide, containing sixty to seventy-five square miles, lying west of Chestnut ridge, divided near its middle, cross wise, by the Youghiogheny river, on which the growing town of Connellsville is located.

This belt is underlaid with the Pittsburg coal seam, from six to ten feet thick. The coal has sometimes a bright calcitic appearance, but generally a columnar structure, is rather soft and friable, containing an excess of bituminous matter and yielding a fair percentage of excellent coke.

The Middle or Bennington zone, is developed on either side of the Pennsylvania railroad tunnel, through the summit of the Allegheny mountain, by the Cambria iron company, for the use of its furnaces at Bennington, Hollidaysburg and Frankstown.

The coal bed is nearly three feet thick; is soft and friable, producing as it comes from the mine, a sonorous, cellular and tenacious coke of great

purity and calorific vigor. The seam is the second or B bed, locally known as the Miller seam. How large the belt is, producing this superior coking coal, is not yet defined.

Adjoining the mines of the Cambria iron company, at this place, are also the mines and coke yard of Messrs. Porter, Dennison & Co., also producing an excellent quality of coal and coke.

The Eastern or Broad Top field, of eighty square miles, affords two seams, (B C) known locally, as the Barnet and Kelly, both very good for the production of a bright, open, tenacious and strong coke.

These furnish the three types of the best qualities of coking coals of the State. The analyses of these typical coals are given as a means of comparison and standards of qualities in coking coals.

	CONNELLVILLE. Pittsburg.	BENNINGTON. Miller.	BROAD TOP.	
			Barnet.	Kelly.
Fixed carbon.....	<i>a.</i> 59.62	<i>b.</i> 68.50	<i>b'.</i> 74.65	<i>c.</i> 71.12
Ash	8.23	8.00	7.50	7.50
Volatile matter.....	31.36	22.38	16.00	19.68
Sulphur .....	.784	1.12	1.85	1.70
Coke	99.994 68 per cent.	100.00 76 per cent.	100.00 81 pr. ct.	100.00 78 per ct.

ANALYSES OF OTHER COALS FOR COMPARISON.

	PITTSBURG SEAM. Irwin's Mines.	ENGLISH COAL. Durham.	WELSH COAL.
	<i>d.</i>	<i>e.</i>	<i>f.</i>
Fixed carbon	61.45	83.27	80.50
Ash	5.80	1.52	6.50
Volatile matter	31.71	8.21	12.10
Sulphur	1.04	.....not given.	0.90
Coke	100.00 66 per cent.	100.00 84 per cent.	100.00 86 per cent.

DRY OR NON-CAKING COALS.

	Mahoning Valley, Penn'a.	Brazil, Indiana.	Straitsville, Ohio.
	<i>g.</i>	<i>h.</i>	<i>i.</i>
Fixed carbon	64.30	57.20	55.60
Ash	1.95	1.90	6.94
Volatile matter	32.73	40.15	36.50
Sulphur.....	1.02	0.75	0.96
Coke.....	100.00 65 per cent.	100.00 58 per cent.	100.00 61 per cent.

Analysis as follows: *b. c.* T. T. Morrell. *b'. d.* Booth & Garrett. *e.* Richardson. *g. h.* Prof. Cox. *i.* Prof. Wormley. *f.* Truran. *a.* A. S. M'Creath, chemical assistant, Second Geological Survey of Pennsylvania.

The property of caking or not caking in the soft coals does not appear to be clearly made out yet. It does not depend upon the amount of volatile matter, for the non-caking coals possess this in the largest volume. Nor, as a general rule, does it appear that the caking property increases with the increase of the hydrogen and oxygen, but rather on the presence of different kinds of bitumen, or to the chemical constitution of the coal as respects the manner in which the gases are combined with the carbon. This combination producing hydrocarbons will account, in part, for the loss of carbon in coking, but not all.

Ordinary analyses fail to indicate the essential qualities of a good coking coal. They are highly useful, however, in exhibiting the carbon ash and sulphur, thus clearly indicating the strength and purity of the coal.

The only sure method in the determination of the adaptability of coal for coking, is to have a quantity of it made into coke, and a study of its physical and chemical properties carefully made.

Other conditions being satisfactory, coal can now be cleansed from an excess of slate and sulphur by a process of crushing and washing.

At the Cambria iron and steel works, at Johnstown, Bradford's cylinder breaker, with the usual jigs, are used.

The Kemble iron and coal company, in the Broad Top region, use a modification of M. Berard's coal washing apparatus, with much success.

The Rockhill iron and coal company, in East Broad Top, used Bradford's coal breakers with the English sluice washer, recommended by J. Lowthian Bell, Esq., and report satisfactory results.

By this washing operation, many coals can be made into good coke, which otherwise, would not prove satisfactory.

With coals adapted to coking, the result can never be doubtful, whether the coke is made in open heaps, Beehive ovens or Belgian ovens.

The primitive mode of coking coal in heaps or mounds, very naturally grew out of the method employed in making charcoal in conical mounds, for furnace use.

The plans are essentially the same, but in the case of the coal, it has been gradually improved, mainly in respect to uniformity of quality of coke and saving of carbon.

The coke yard is prepared by leveling a piece of ground and surfacing it with coal dust. The coal to be coked is then arranged in heaps or pits, with longitudinal, transverse and vertical flues; sufficient wood being distributed in these to ignite the whole mass.

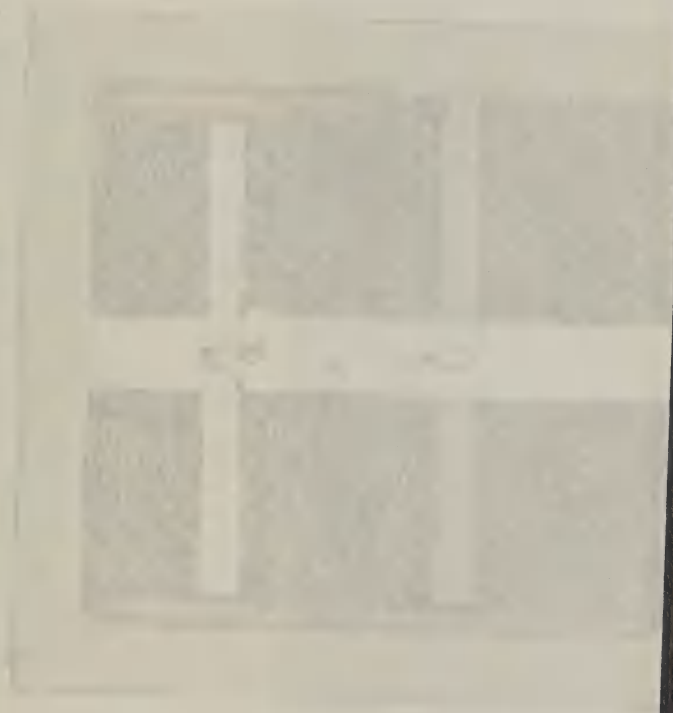
Beginning on a base of fourteen feet wide, coal is spread to a depth of eighteen inches. (A) On this base the flues are arranged and constructed as shown in the plan, the coal being piled up as shown in section B. The

W. B. Hill

W. B. Hill

W. B. Hill

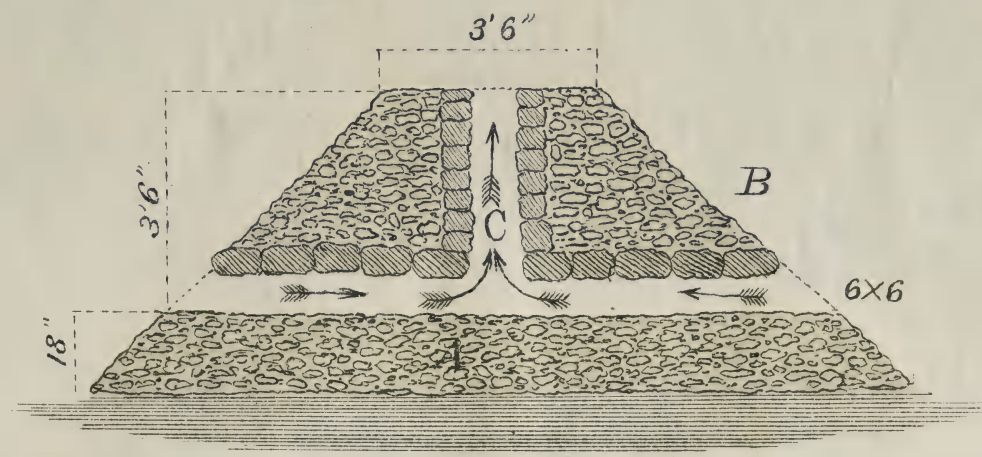
W. B. Hill



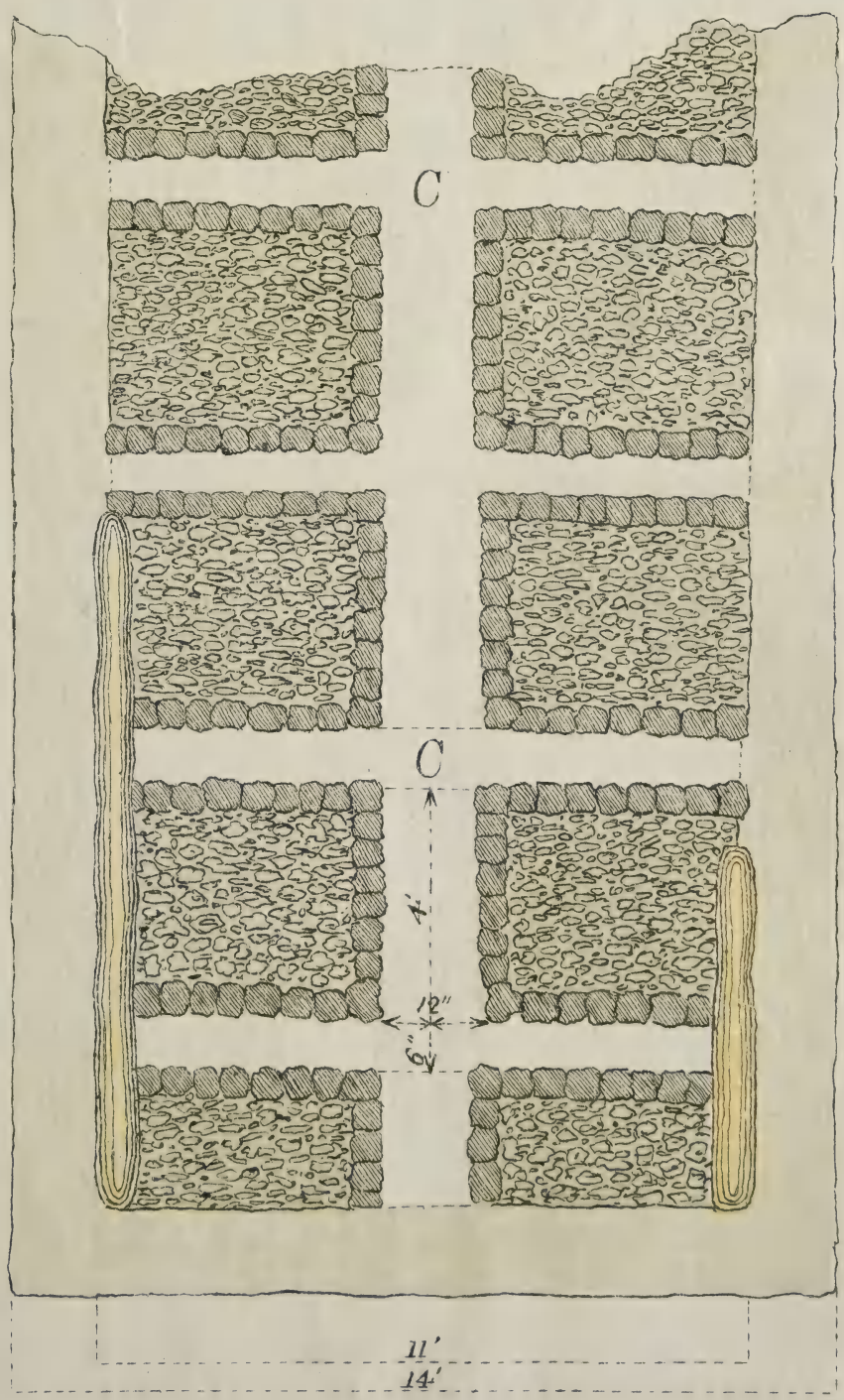
CAMBRIA IRON COMPANY

BENNINGTON COKE PITS

J. Fulton E.M.



CROSS SECTION



GROUND PLAN

flues are made of refuse coke and lump coal, and are covered with billets of wood.

When the heap is ready for coking, fire is applied at the base of the vertical flues, (C C) igniting the kindling wood at each alternate flue.

As the process advances, the fire extends in every direction until the whole mass is ablaze. Considerable attention is required in managing this mode of coking, in diffusing the fire evenly through the mass, in preventing the waste of coke by too much air at any place, and in banking up the heap with fine dust as the operation progresses from base to top.

When the burning of the gaseous matter has ceased, the heap is carefully closed with dust or duff, and nearly smothered out in this way. The final operation is the application of a small quantity of water down the vertical flues, which is quickly converted into steam, permeating the whole mass. This gives coke with the least percentage of moisture, if carefully applied.

The time necessary for coking a heap with the Bennington coal, is from five to eight days, depending mainly on the state of the weather.

It will be shown that coke made in this way is beyond any doubt, excellent.

The yield of coke, accurately determined, at Bennington and Hollidaysburg, is as follows :

BENNINGTON.

Coal used.....	56.87	gross tons.
Coke drawn.....	33.63	"
Loss.....	23.24	"

Yield of coke, 59.1 per cent. ; loss, 40.9 per cent. ; 1.67 tons of coal to 1 ton of coke.

HOLLIDAYSBURG.

Coal used.....	63.80	gross tons.
Coke drawn.....	38.02	"
Loss.....	25.78	"

Yield of coke, 59 per cent. ; loss, 41 per cent.

The yield at both places is substantially the same, 59 per cent., exhibiting a loss of 24 per cent. of the carbon contained in the coal.

The Beehive oven is evidently well adapted for coking coal, and is a great advance in the production of a uniform quality of coke volatilizing a maximum quantity of sulphur.

The coal is spread evenly over the floor of these ovens to an average depth of two feet. The heat of the oven ignites the charge, and as the coking progresses the air is more and more excluded by bricking up the door and luting with clay; 48 to 72 hours are usually required to produce coke.

The 3,579 ovens of the Connellsville coke region are all on the beehive plan, receiving an average charge of 100 bushels of coal, dumped through the opening on the crown of the oven, and yielding, according to current tradition, 120 bushels of coke.

The yield in the Connellsville region, adopting the above data, is as follows:

100 bushels of coal @ 76 lbs. per bushel, equal	3.39 gross tons.
120 bushels of coke @ 40 lbs. per bushel, equals.....	2.14 “
Loss.....	<u>1.25 “</u>

Yield of coke 63 per cent.; loss, 37 per cent. One and six-tenth tons coal to one ton of coke.

The coke is silvery, cellular and tenacious, possessing great calorific power and is comparatively free from impurities.

The Kemble coal and iron company use beehive ovens to coke for their furnaces at Riddlesburg in the Broad Top coal region.

The process is substantially the same as at Connellsville, and the coke produced is very similar in all respects. The yield is as follows:

Coal charged into oven.....	4.35 gross tons.
Coke taken out.....	2.74 “
Loss	<u>1.61 “</u>

Yield of coke 63 per cent.; loss, 37 per cent.; 1.58 tons of coal to one ton of coke.

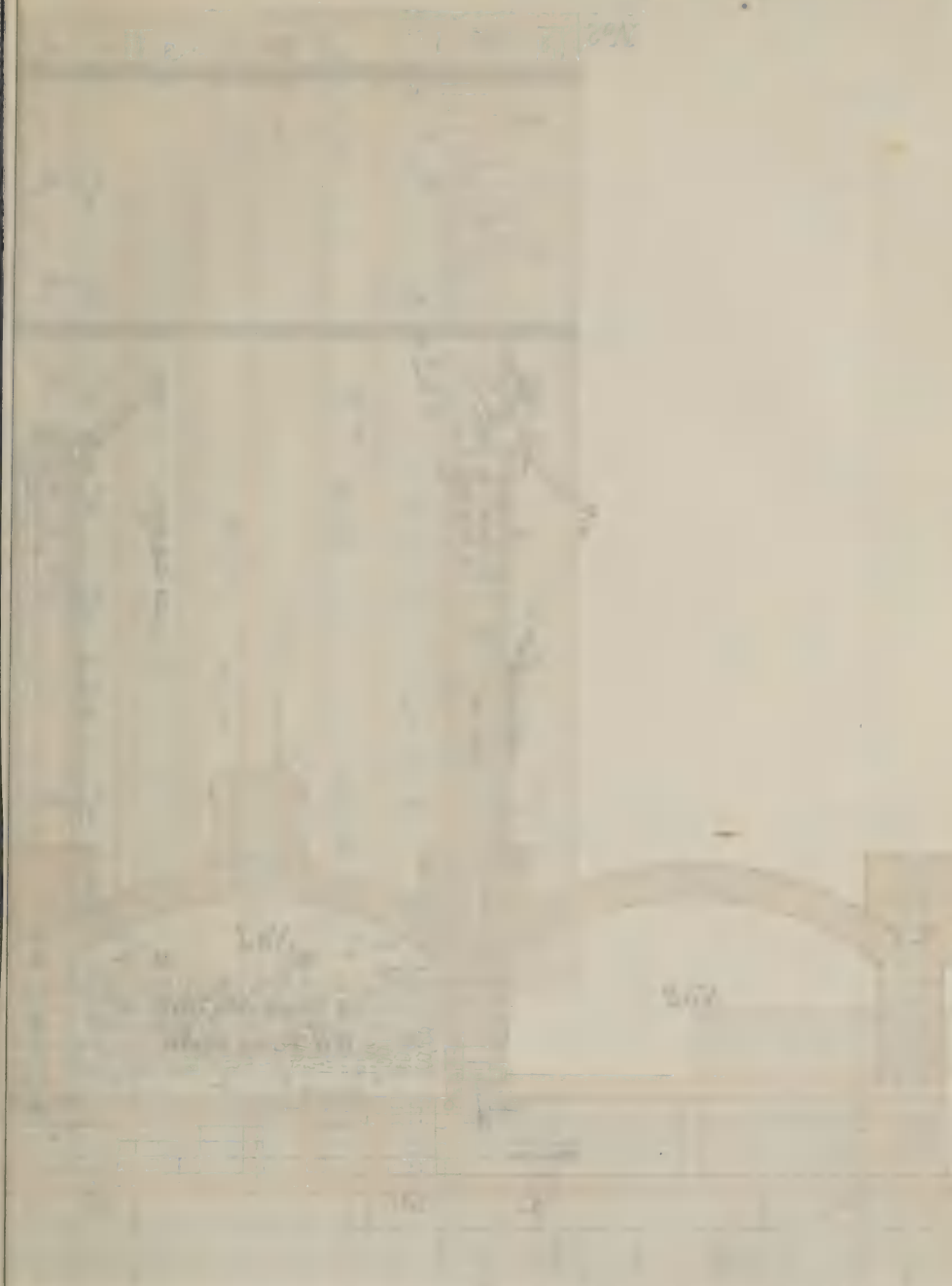
The loss of carbon at Connellsville and Broad Top is as follows: Connellsville 9 per cent.; Broad Top $22\frac{1}{2}$ per cent.

BELGIAN OVEN.

The accompanying drawings will illustrate the improved Belgian oven, exhibiting its size, arrangement of tracks for supplying coal to ovens, and for the engine that pushes the coke out of ovens.

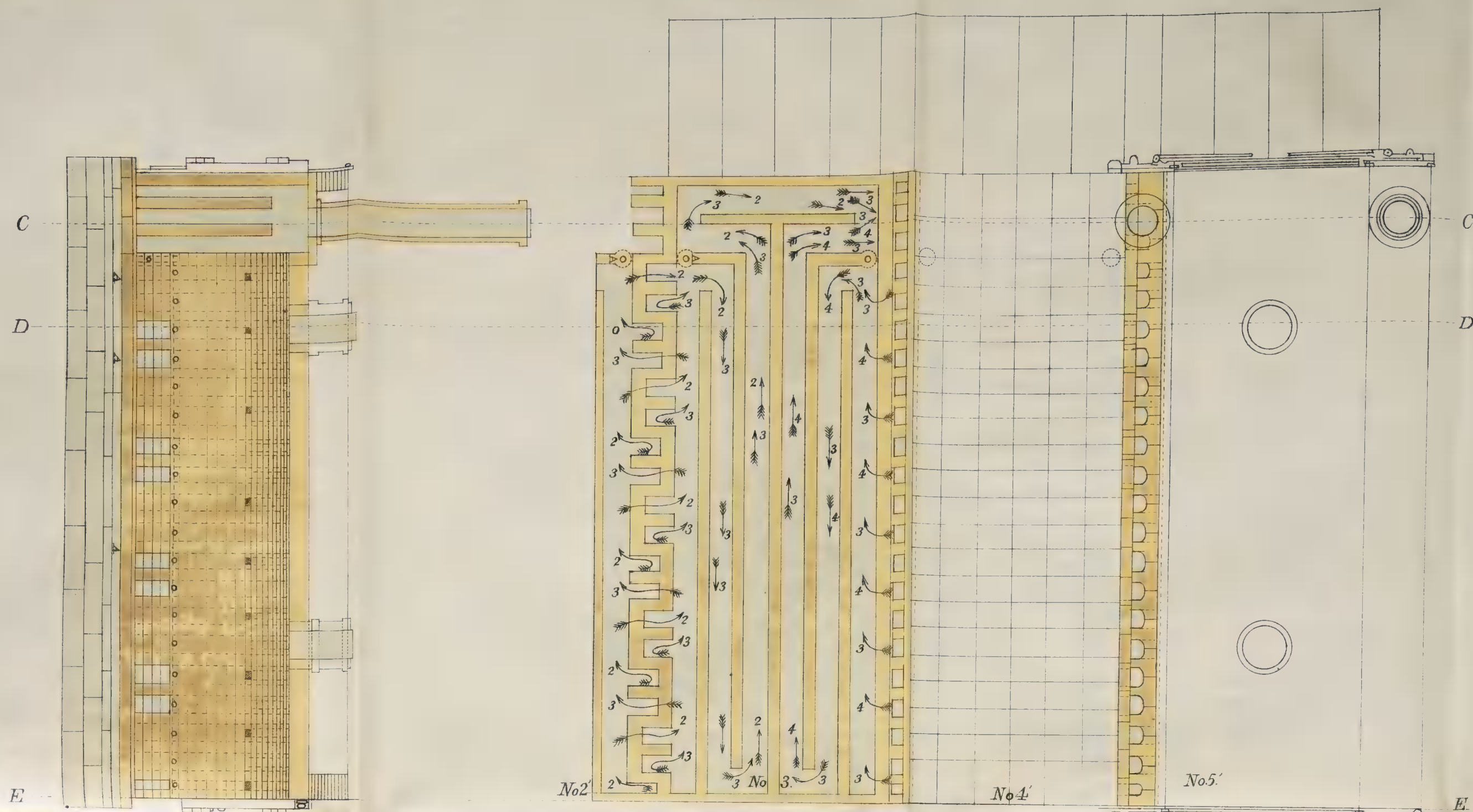
A number of ovens bearing different names but operating essentially on the same general principles and belonging to this type, are now in use, each pressing peculiar claims on public attention.

There appears to be, without any sufficient reason, a wide range given to the discussion of the merits of the several members of the Belgian oven family. This is certainly “multiplying words without knowledge,” for in



Arch. Elevations
A. WHITE & LAMBERT'S BUILDING
Scale 1/2" = 1'

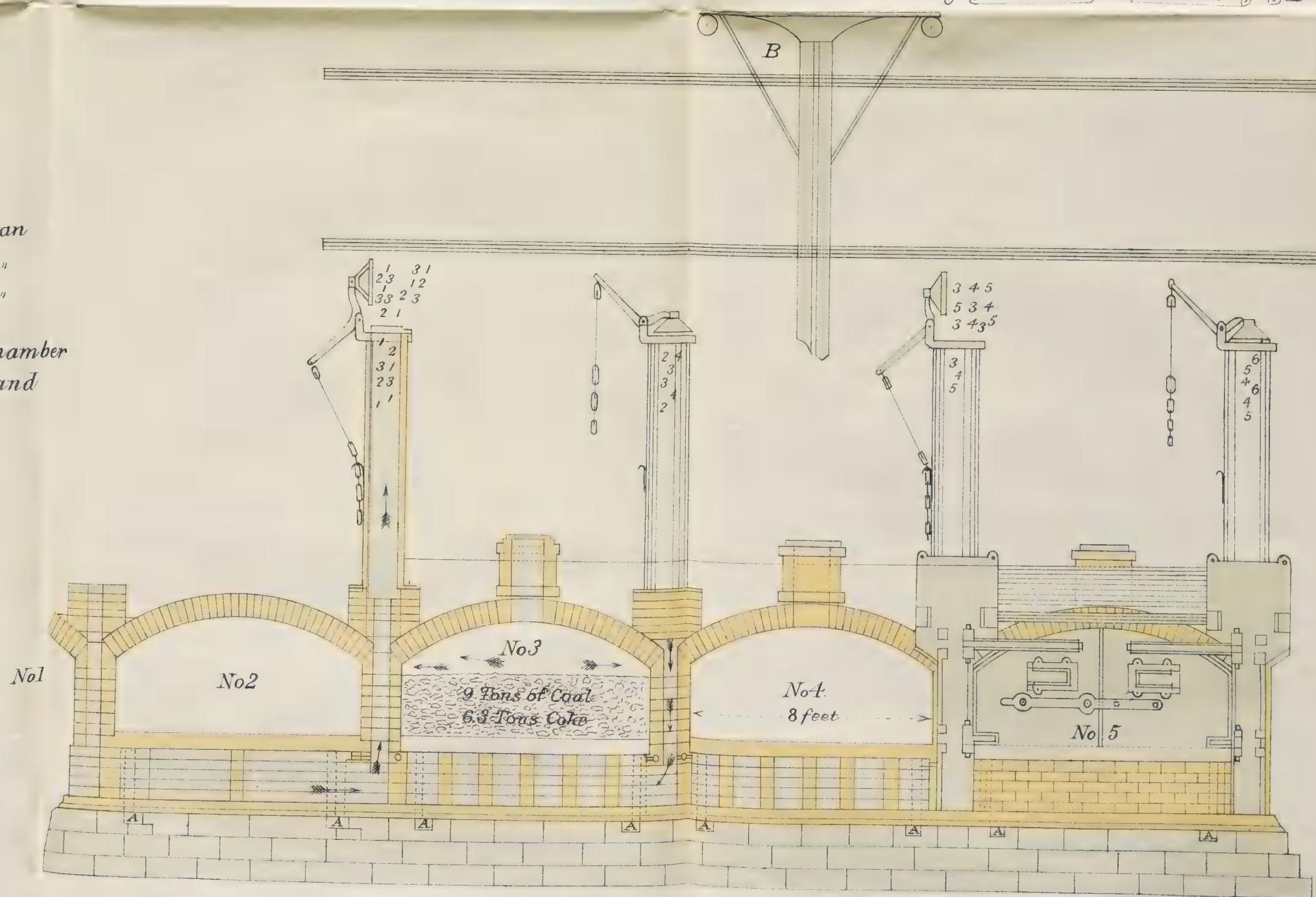
Fig. 10



No 1.

REFERENCE

- No 2. End elev. Section through C-C of Plan
- No 3. " " " " D-D " "
- No 4. " " " " F-E " "
- No 5' " " Showing Doors & Binders
- A.A. Flues admitting Air to Combustion Chamber
- No 3' Plan of Flues under Coking bottom and foundation of partition Wall
- No 4' Plan Section through H H
- No 5' Plan of Top of Arch
- B Pusher Head



End Elevation

J. KING M^CLANAHAN'S COMPOSITE COKE OVEN.

Scale 1/4 to 1/2

J. King M^CLanahan, Hollidaysburg, Pa.

RPF 1875

every case the conclusive evidence consists in the work done, the economy in doing it and in the saving of the carbon of the coal.

The result of coking at Hollidaysburg in Belgian ovens, with Bennington coal is as follows:

Coal used.....	6.86 gross tons.
Coke made.....	4.81 “
Loss	<u>2.05 “</u>

Yield of coke 70 per cent.; loss, 30 per cent.; 1.42 tons of coal equal one ton of coke.

As the coal used contained 68 per cent. of carbon and 8 per cent. of ash, and the coke produced 70 per cent. of coal, the loss is 10 per cent. of carbon in the operation.

The make, by the great bank of Belgian ovens, of the Cambria iron and steel works at Johnstown under the care of Mr. W. Grist, corroborates this, yielding 70.3 per cent. of coke from a rather dry coal holding 73 per cent. of fixed carbon, and 6 per cent. of ash indicating a loss of 13 per cent. of carbon, which is somewhat more than the loss at Hollidaysburg.

The percentage of coke produced and the loss of carbon by these three typical methods, are as follows:

Bennington and Hollidaysb'g pits, 59 per ct. of coke, 24 per ct. loss of carbon.	
Beehive ovens, Connellsville... 63.....do.....	9 .....do.
Do.....Broad Top..... 63.....do.....	22½ .....do.
Belgian ovens, Hollidaysburg.. 70.....do.....	10 .....do.
Do.....Johnstown..... 70.3...do.....	13 .....do.

It is a remarkable fact that the waste or loss of carbon indicates not only the economy in the three methods of coking but also the character of the coals as regards their gaseous or dry properties.

In further considering the relative economy of these typical modes of coking, the value of a gross ton of coal, at the ovens, will be taken at \$1.

I. Pits or Mounds.

Hollidaysburg and Bennington, 1.67 gross tons, @ \$1, equals....	\$1 67
Labor, wood, &c.....	70
Total, 1 gross ton coke.....	<u>2 37</u>

II. Beehive Ovens.

Connellsville, 1.60 tons at \$1.....	\$1 60
Labor, charging and drawing.....	61
Total cost of ton coke.....	<u>2 21</u>

Broad Top; Kemble Coal and Iron Co., 1.58 tons at \$1.....	\$1 58
Coking.....	60
Total	<u>2 18</u>

III. Belgian Ovens—Cambria Iron Company.

Hollidaysburg, Bennington coal—coal used to one ton coke, 1.42 tons at \$1.....	\$1 42
Labor, supplies, &c.....	45

Total cost of one ton coke. 1 87

Johnstown, Miller coal, B, coal used to one ton coke, 1.42 tons at \$1, \$1 42	\$1 42
Labor, supplies, &c.....	45

Total

The cost of the coal and labor of coking one gross ton of coke, by the three methods just considered, is as follows:

I. Pits or mounds	\$2 37
II. Beehive ovens.....	2 20
III. Belgian ovens.....	<u>1 87</u>

Exhibiting an increasing cost from the Belgian ovens to the open pits or mounds.

But in this first comparison of costs no place has been given to the interest on the investment in preparing the several modes for coking, which is quite an important factor.

Estimated cost of *plant* for the production of 100 tons of coke per day:

I. Pits or Mounds.

Levelling coke yard, fixtures, &c.....	\$1,000 00
Interest on investment, at 10 per cent. per year.....	100 00

Then, $\frac{\$100}{30,000 \text{ tons}} = \frac{1}{3}$ ct. per ton per year..... 00 $\frac{1}{3}$

Cost of coal and labor of coking..... 2 37

Total cost..... 2 37 $\frac{1}{3}$

II. Beehive Ovens.

Eighty ovens at \$400.....	\$32,000 00
Interest on investment at 10 per cent. per annum.....	3,200 00
Annual repairs and renewals at \$10.. ..	800 00

Then, $\frac{\$4,000}{30,000 \text{ tons}} = 13\frac{1}{3}$ cents..... 13 $\frac{1}{3}$

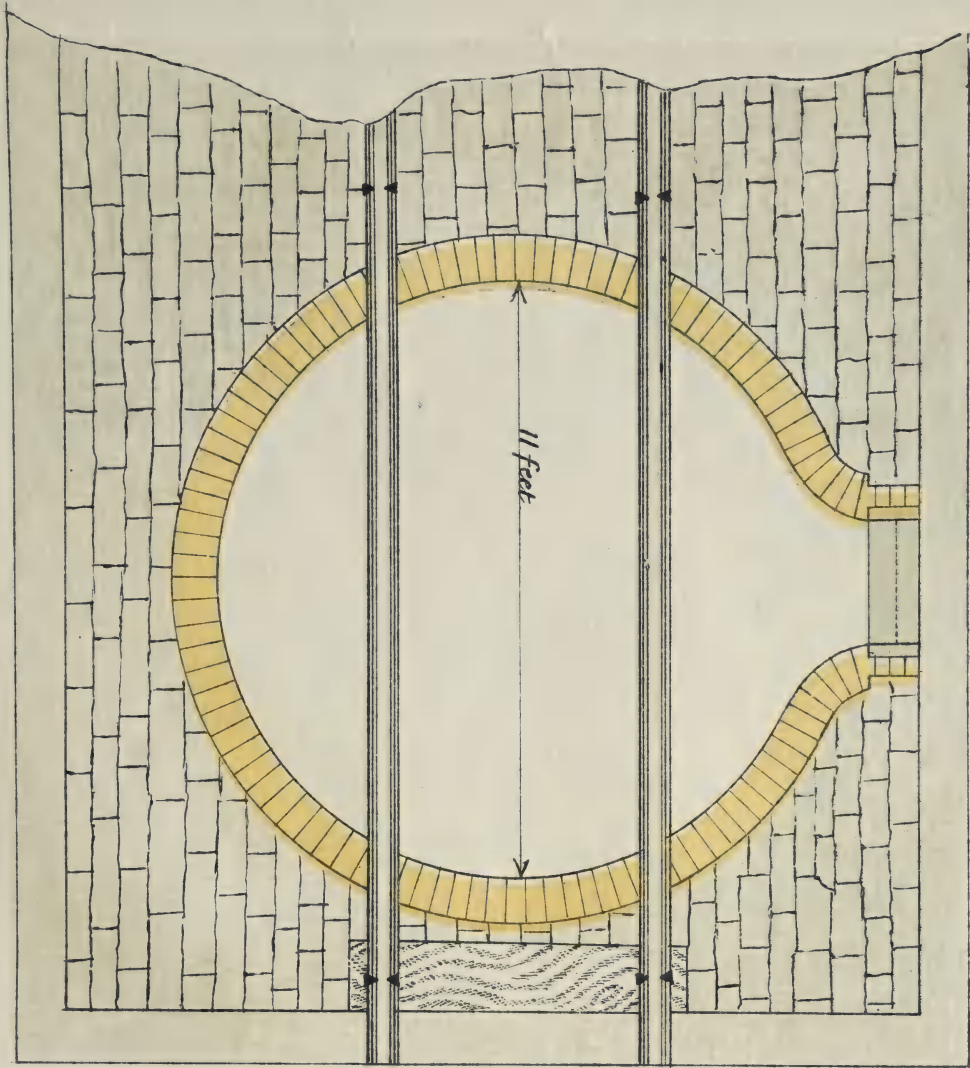
Cost of coal and labor of coking. 2 20

Total cost..... 2 33 $\frac{1}{3}$

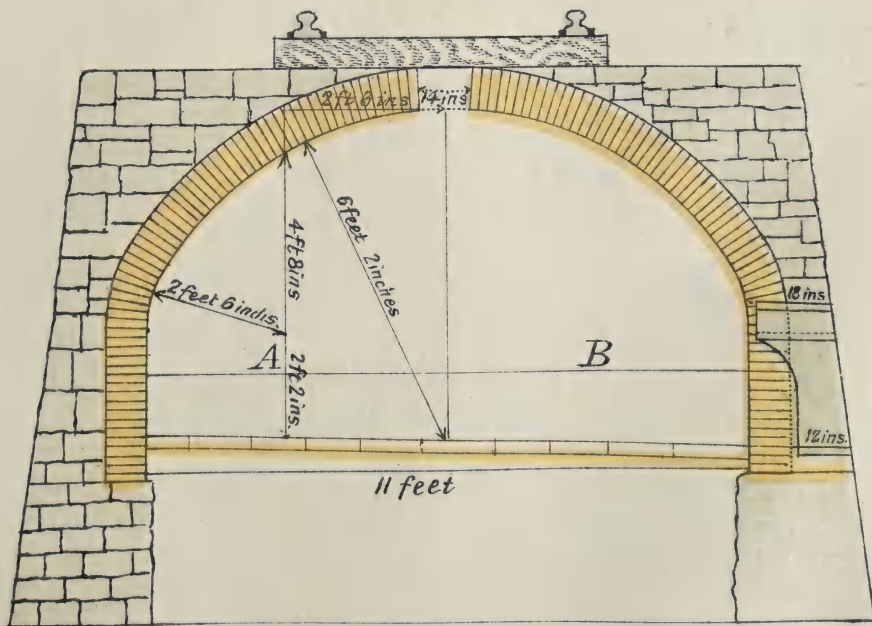


AMERICAN BEEHIVE OVEN

Kemble Coal & Iron Co.



GROUND PLAN



CROSS SECTION

III. Belgian Ovens.

Sixty-five ovens at \$800.	\$52,000 00
Annual repairs to each oven.	310 00
Engine for pushing coke.	3,000 00
Annual repairs to engine.	50 00
Tracks for engine.	300 00
Interest on investment \$55,300, at 10 per cent.	5,530 00
Then, $\$5,530 + \$310 + \$50 = \frac{\$5,890}{30,000 \text{ tons}} = 19\frac{1}{2} \text{ cts., nearly per ton,}$	19 $\frac{1}{2}$
Cost of coal and labor of coking.	1 87
Total cost.	2 06 $\frac{1}{2}$

The tracks and cars necessary to supply coal to pits and ovens have not been estimated for in the foregoing calculations, as it is presumed these several costs would be about equal, adding to each class one-fourth cent per ton for this source of expense.

The ultimate cost then of one gross ton of coke produced by these three methods, is as follows :

Mounds or pits.	\$2 37 $\frac{3}{5}$
Beehive ovens.	2 33 $\frac{3}{5}$
Belgian ovens.	2 06 $\frac{3}{4}$

The following table exhibits the physical properties of the cokes made in the State, from the best coking coals by the three methods of coking most generally in use :

<i>Gap Furnace, near Hollidaysburg:</i>									
Top of oven.....	13.22	20.72	50.37	78.93	63.80	36.20			
Middle of oven.....	13.54	20.67	51.60	78.76	65.50	34.50			
Bottom of oven.....	16.92	24.17	64.46	92.09	70.42	29.58			
Average.....	14.56	21.85	55.47	83.26	66.57	33.43	248	100	I.
<i>Rockhill Coal and Iron Company:</i>									
Washed Coal—Top of pit.....	10.11	17.89	38.52	68.16	56.51	43.49			
Middle of pit.....	11.66	20.22	44.42	77.04	57.66	42.49			
Bottom of pit.....	11.79	19.05	44.92	72.59	61.89	38.11			
Average.....	11.18	19.05	42.59	72.58	58.69	41.31	200	80	II.
<i>Open pits.....</i>									

This table is designed to illustrate the desirable physical properties of coke, exhibiting its capacity to sustain furnace burdens.

The cellular space was obtained by immersing an accurately cut inch cube of coke in a glass of distilled water under the receiver of an air pump, exhausting the air and weighing the cube dry and wet; the difference indicating the cellular space, as the specific gravities of coke and water are very nearly alike.

The best cokes have the cell space to the whole mass, as 33 to 67, or as 1 to 2 nearly, but this proportion can differ widely in cokes giving equally good results in furnace use; 38 to 62 is obtained from a coke of first class order in strength and purity.

Other conditions being equal, *the size of the coke cells is important* in giving a first quality of furnace fuel, especially in facilitating its combustion by freely receiving carbonic acid gas, formed lower down in the furnace, thus accelerating its solution and yielding abundant carbonic oxide for the de-oxidation of the iron ore.

A very dense coke with diminutive cells or rather pores, is always undesirable in furnace operations, as it resists solution with an obstinacy that is truly surprising.

A piece of such coke was handed to me which had passed down and out of a fifty feet furnace, apparently little wasted by its fiery journey. In this connection it may be claimed that the anthracite coal is much more dense than coke of any grade, and as the former can be used in the blast furnace, why not the latter?

To this it may be replied, that the operations of these fuels in combustion in a furnace are widely different, the anthracite coal decrepitating and thus becoming divided into quite small pieces, affording enlarged surface space for solution, whilst on the other hand, coke is not split into pieces as it approaches the hot zone, and its free combustion is attained only from its large cell structure.

Evidently Mr. J. Lowthian Bell experienced this when he wrote: "My firm has tried these plans, (Belgian ovens,) but found the useful effect in the furnaces inferior to that obtained from coke made in the ordinary oven, (Beehive.) In consequence of this, all the more recently erected ovens have been constructed upon the old fashion.*

The table shows that the coke made in shallow charges in the bee-hive ovens is less dense than the coke made in Belgian ovens in deep charges, the bottom section of the charge in the latter case showing a very decided increase in density.

Where coal has a tendency to enter a condition of semi-fusion in coking, agglomerating it usually forms a very decided cellular coke, coked by any

* J. Lowthian Bell on Iron Smelting, page 315.

of the methods now in use. But where the coal has a tendency to dryness and consequent dense, porous structure, it is important that it be coked in thin charges, and rapidly, to obtain the best physical condition possible with such coal.

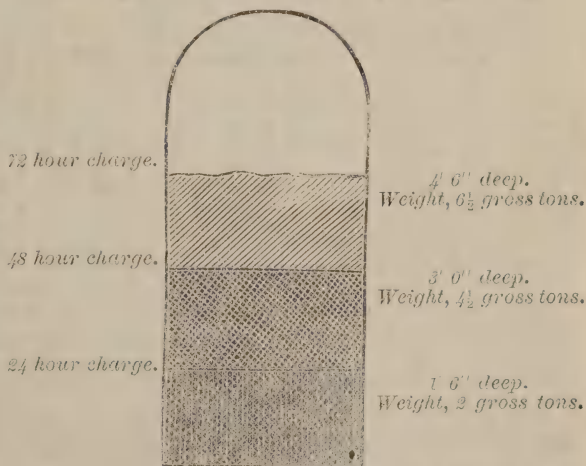
There appears yet to be some defects, even in the best methods of coking, or rather a want of adaptability of the methods to the several qualities of the coal used.

(a.) The tendency is noted of some coals to produce a dense, leaden colored coke, with fine pores, increasing in closeness of structure, when coked in deep charges in Belgian ovens, from top to bottom. Such coal should be coked in shallow charges to produce the best possible results. Under such a condition the bee-hive ovens would perhaps be the best.

(b.) The depth of charges in each of the three methods under consideration is, in many respects, objectionable, as it renders the volatilization of the sulphur from the middle and bottom sections more difficult, the amount of which retained is in direct proportion to the depth

Just here it may be proper to note that in both the bee-hive and Belgian ovens the depth of the charge of coal is proportioned to the time determined for coking. In the Belgian ovens at Hollidaysburg, using the Bennington coal, the weight and depth of charges have been accurately observed by Mr. W. R. Babcock, superintendent of the Blair iron and coal company, as illustrated in the marginal sketch

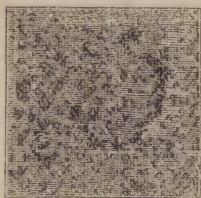
It is manifest that the shallow charges have produced the best and purest coke, but the economy of coking is on the side of the deeper charges.



Section of Belgian Oven, showing the depth of charges for 24, 48 and 72 hour coke.

(c.) From the bottom bench of the charge being coked under pressure, forming a denser structure, it requires a greater amount of heat in coking, just at a place in the oven the most difficult to reach. Mr. J. King M'Lanahan, of Hollidaysburg, who has given these ovens a careful study, suggests that this might be obviated by alternating the charging of the ovens, utilizing the surplus gases disengaged in the early part of the operation for

supplying the deficient heat in the floors of the adjoining ovens. This would meet the requirement of thorough coking, but does not remove the objections in the case of some coals, of a close structure in coke, and in obstructing the volatilization of the sulphur.



Section of "dense" coke—undesirable structure.

From the foregoing determinations, it follows that two results in coking are absolute requirements in order to produce the best possible fuels for furnace use. First. An open cellular structure, with cells as large as possible, by the coal used. As the tenacity of all the cokes examined is greatly above the requirements of the highest furnace now in use, no fears need be entertained in this respect. And, second. The volatilization of all the sulphur possible in the operation of coking.



Section of "open" coke—desirable structure.

The following table exhibits analyses of the fuels under consideration; indicating, also, the percentage of the sulphur volatilized in coking:

Analyses of typical fuels for furnace use. Anthracite coal, coke and dry bituminous coal.

NAME OF FUEL AND LOCALITY.	Fixed carbon.	Volatile matter.	Ash.	Sulphur.	Phosphorus....	Moisture.	Sulphur volatilized in coking.
Anthracite—best.....	89.06	3.45	5.81	0.30	0.024	1.35	.....
Do.....average.....	82.50	5.50	10.50	0.35	0.012	1.15	.....
Connellsville coke.....	87.46	.....	11.32	0.69	0.029	0.49	.....
Do.....do.....	87.23	.....	11.99	0.746	.....	.....	40
Bennington.....	86.29	.....	12.80	0.91	.....	.....	52
Hollidaysburg.....	87.53	.....	11.36	1.06	.....	.....	34
Broad Top—K. C. & I. Co....	89.28	.....	9.66	1.06	.....	.....	56
Mercer county block coal...	68.03	25.49	1.70	1.04	.....	3.80	.....

Some careful chemical investigation is very much desired to unfold the several conditions in which sulphur is found in coal and the ratio of each which can be volatilized in the operation of coking.

The greatest volume of the sulphur in coal undoubtedly exists, as bi-sulphide of iron, (Fe S_2). In coking, one equivalent of sulphur is volatilized, leaving the mono-sulphide (Fe S) in the coke.

If sulphur is present in the coal united with lime, as sulphide of calcium, it will be volatilized readily; but if it takes the form of the sulphate (gypsum,) it cannot be driven off in a coke oven.

The result of volatilization by coking given in the foregoing table, must be used with caution, because the coking has been performed under various conditions. It indicates, however, that the same quality of coal, coked in mounds at Bennington, parted with 52 per cent. of its sulphur, but when coked in Belgian ovens at Hollidaysburg, only 34 per cent. was driven off.

The work of the Beehive ovens shows that the Connellsville coal parts with 40 per cent. of its sulphur whilst the Broad Top coal surrenders 56 per cent.

These results are submitted more to indicate the wants in future investigations than to assume any definite work in this department of inquiry.

As the physical structure of coke and its purity are the two prime elements which constitute its value as a furnace fuel, it is evident that coke ovens should be planned to satisfy these essential requirements.

It is believed that both these results can be attained, so far as the qualities of each class of coal will permit, by shallow charges in the coke oven.

In view of all the facts collected on the coking of coal for furnace use, and feeling satisfied that perhaps a combination of existing plans could be devised in which the several qualities of coals could be coked with the best results, and, at the same time, with the greatest economy consistent with the production of the best possible quality of coke, I have asked Mr. J. King M'Lanahan to devise such a plan which is herewith submitted.

This plan unites the good qualities of the Beehive and Belgian oven.

1. The charge is made wide and shallow, as in the Beehive, and in the best condition to produce an open cellular coke, also affording the best facilities for the volatilization of the sulphur in the coal.

2. The arrangement of flues is such as to utilize the gases, diffuse the heat equally, producing a uniform quality of coke.

3. The shallow charges require only 30 hours for coking.

The coke is to be pushed out *en masse*, by an apparatus similar to those used in Belgian ovens—retaining this element of economy in producing coke.

The method of charging, through openings in the crown of the oven, is used in this plan as in the other ovens.

It will thus be seen, that with the application of the true means for producing the best quality of coke, the utmost economy in the operations is preserved.

The oven is 24 feet long, 8 feet wide and $2\frac{1}{2}$ feet deep, receiving a charge of coal 2 feet deep, weighing 9 gross tons, and yielding 6.3 gross tons of coke.

A day's work of each class of oven is as follows :

Beehive.....	125 gross tons.
Belgian.....	155 “
Composite.....	504 “

The cost of this improved oven is estimated at about \$1,000, by Mr. M'Lanahan.

Taking this as it is estimated, the cost of producing coke in this oven, including interest on invested capital, is as follows :

1.42 tons of coal @ \$1.....	\$1 42
Labor, supplies, &c.....	40

Coal and labor.....	<u>1 82</u>
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Investment for 100 tons of coke per day :

20 ovens @ \$1,000.....	\$20,000 00
Annual repairs for each oven \$20.....	400 00
Engine for pushing coke.....	3,000 00
Annual repairs to engine.....	50 00
Tracks for engine.....	600 00
Interest on investment, \$23,600 @ 10 per cent.....	2,360 00

Then, $\$2,360 + \$400 + \$50 = \frac{2,810}{30,000 \text{ tons}} = .093 \text{ cents per ton.}$

Ultimate cost coking.....	1.82
Interest on above.....	<u>.093</u>

Total.....	<u>1.913</u>
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Comparing the several methods ; the cost per ton of coking is as follows :

Pits or mounds.....	2.37 $\frac{3}{8}$
Beehive ovens.....	2.33 $\frac{3}{8}$
Belgian ovens.....	2.06 $\frac{3}{4}$
Composite ovens.....	<u>1.913</u>

A closing consideration in the production of coke claims earnest attention, the means of quenching it in its three methods of manufacture. The amount of water retained in cokes varies from $\frac{1}{2}$ of 1 per cent. to 12 per cent. or more, depending upon the conditions in which it is quenched.

As has been stated, in the means employed in the pits or mounds, viz : smothering the coke out with fine dust, only using a very small quantity of water as the last act of the operation, a very dry coke is obtained ; and with care, certainly a minimum of moisture absorbed. This is a very decided advantage in pit coking, which will be considered hereafter especially when done near the furnace, giving from the pit a dry fuel.

The coke made in Beehive ovens is quenched by discharging water into the oven from a hose. The water is quickly converted into steam which permeates the whole mass of the coke, doing its work with the smallest amount of water and vapor. This also gives a very dry coke.

The Belgian oven class is open to serious objections, from the manner in which the coke is quenched. The pushing engine discharges the contents of the oven at a red heat, in a mound twenty feet long, from two to

three feet wide, and from three to four feet high. A hose is turned on this incandescent mass until it is soaked. Pools of water are made on the platform, the vapor escapes, and the coke is charged with moisture from 2 to 12 per cent. It is possible, by careful application of water, to reduce the average of the moisture, but the whole plan of doing this part of the work is essentially clumsy.

As a rule in all methods of quenching the coke, the finer the pores or cells of the coke, the more moisture it will retain.

This matter is now under consideration and several suggestions have been submitted for overcoming this wetting of the coke. The most feasible of these is a design in which the charge of coke is to be pushed into an iron receiver, resting on a carriage running in front of the ovens, like a transfer table; water and steam, mixed with carbonic acid gas to be carefully used in quenching the coke. By this means it is hoped to attain results equally satisfactory with the Beehives or open pits. A single apparatus of this kind is intended to receive all the coke from a large bank of ovens, plying on a rail track in front of them. Wet coke invariably cools the furnace and is in every respect objectionable.

As uniformity in the quality of coke as a furnace fuel, is an imperative necessity to insure its regular working, so the dryness of the coke is demanded for the same reason. Neither furnace men nor cokers have given this matter the attention its importance demands, for it is an important factor in the harmony and economy of the working of the furnace.

II. The efficiency and economy of coke, as compared with anthracite coal, in the metallurgy of iron.

Practically the true value of furnace fuels, as regards their efficiency and economy, is determined by the quantity of each class required to smelt one ton of pig iron.

In this determination, however, there are many factors, each requiring careful consideration else the result is practically valueless. The size of the furnace, its blast heat and pressure, the qualities of the iron ores used with the quantity and character of flux, and the resultant quality of pig iron.

That there is a well defined measure of the quantity of coke required to smelt one ton of pig iron has been clearly demonstrated by Mr. J. Lowthian Bell in his valuable work on the chemical phenomena of iron smelting. On page 388 of this work, he sums up the conclusion, from an elaborate investigation of the whole matter: "Regarded in this way I would give it as my own opinion that in taking the ordinary run of Durham coke and Cleveland ironstone, the iron-master who produces a ton of No. 3 iron with $21\frac{1}{2}$ cwts. (2,408 lbs. = 1.075 gross tons,) with the blast heated to 500° C. (932° F.) may consider himself as working very closely up to those limits

of economy which are prescribed by the nature of the materials he is operating upon."

Taking this 1.075 gross tons of coke to smelt one ton of pig iron, using Cleveland ironstone, giving 41 per cent. of iron as a standard of comparison the relative values of other cokes will be made manifest.

The Bennington furnace, of the Cambria iron company, 10'×40', blast 2½ to 3 lbs., heat 600° F. running on a mixture of Lake Superior and native hematite ores, averaging 56 per cent. of metallic iron, producing an excellent quality of Bessemer pig iron, using in an annual average 1.3 tons of pit coke to one ton of pig iron. With an increase of the temperature of the blast to 900° F. and an increase of its pressure, it is probable that the consumption of coke would be reduced to the standard indicated above, (1.075 tons.)

The results however, in a furnace of this moderate size are very excellent, indicating the energy and efficiency of the coke used.

Pittsburg Furnaces.—Two works have been quite prominent during the past year for their very extraordinary yields of pig iron—the Isabella and Lucy works at Pittsburg. They seem to be competing for the largest yield of a single furnace on this continent, if not in the world.

The size of these furnaces is as follows :

	Lucy Furnace.*	Isabella Furnace.†
Height of stack.....	75 feet.	75 feet.
Width of bosh.....	20 feet.	20 feet.
Pressure of blast.....	4—8 lbs.	4—8 lbs.
Temperature of blast.....	750°—1,000° F.	800°—1,000° F.
Lake Superior ore 62 per cent.,		L. S. ore 62 per cent.
Pig iron made for the week ending October 16, 1875.	762½ ¹⁰⁹⁴ / ₂₆₈ tons.	714½ ²⁴⁹ / ₂₆₈ tons.

In these efforts, doubtless the quantity of coke used is quite large—greatly above the standard, how much is not publicly known. The results are evidently attained by forcing the air at high pressure and in large volume with the swift calorific energy of Connellsville coke.

In ordinary work, the Lucy furnace is reported to use, "with strictly first class coke, from 3,300 to 3,350 pounds per ton of iron made. This includes an allowance of five per cent. for waste in handling." This gives 1.47 to 1.49 tons of coke to one ton of pig. The coke is made from washed Pittsburg coal.

The Isabella is reported as using, when making foundry iron, 1.16 tons coke, and running on mill iron, 1.07 tons. The coke is partly made from washed Pittsburg coal and partly from the large and excellent coke works

*Gray Forge and No. 1 foundry iron.

†One-third foundry and mill iron.

of the Pittsburg and Connellsville Gas Coal and Coke company, of which John F. Dravo, Esq., of Pittsburg, is general manager.

Shoenberger, Blair & Co., in a furnace 13×62 feet, with blast of 3 to 5 lbs, and temperature 800° to 850° F., ores 57 per cent., coke from Pittsburg coal, washed, use 65 to 70 bushels of coke, or 1.16 to 1.25 tons to 1 ton of pig metal.

Dunbar furnace in the Connellsville coke region— $16\frac{1}{2} \times 58$ —blast $5\frac{1}{2}$ lbs, temperature 750° F., running on native carbonates, stiffened with a mixture of Lake Superior ore, is using 1.58 tons of a roughly made coke to 1 ton of excellent pig iron

Neshannock Iron Company, New Castle, Pa. Furnace 15×60 feet; pressure of blast 3 to $3\frac{1}{2}$ lbs.; temperature, 800° F. make 300 tons a week from Lake Superior ore. Coke 1.33 tons for foundry iron, and 1.50 tons to 1 ton of Bessemer pig.

Kemble Coal and Iron Company. Broad Top. Furnace 16×65 feet, blast pressure $5\frac{1}{2}$ lbs.; heat 800° F. Ores 30 to 35 per cent; 1.9 tons coke to 1 ton of excellent pig iron.

Equating the work of this furnace in reducing these lean ores, with the consequent increase of flux, would give 1.18 tons of coke to 1 ton of pig iron.

Cambria Iron and Steel Company, Johnstown. Belgian oven coke. Furnace 15×70 ; blast $4\frac{1}{2}$ lbs.; heat 700° F., running on native carbonate calcined iron ore; use 1.35 tons of coke to 1 ton of pig iron.

It will thus be evident that the quantity of coke to make 1 ton of pig iron ranges from 1.16 to 1.50 tons with ores and other conditions nearly alike. When these have been exceeded as in furnaces running on lean ores, the reason is obvious. That with care in furnace work, and the use of good coke there can be no question that the standard 1.075 to 1 ton of pig iron from 50 per cent. ores can be readily attained—but in a State measuring her coal beds by thousands of square miles, it is difficult to induce the study or application of economy in the use of this fuel in blast furnaces.

ANTHRACITE COAL.

In No. 26 of the Engineering and Mining Journal for June 27th 1874, a very exhaustive table is given of the work of furnaces running on anthracite coal. This table embraces the years from 1855 to 1873, inclusive. The average of coal given to 1 ton of pig iron from 1869 to 1873 is $1\frac{2\frac{1}{2}}{2\frac{1}{2}}$ tons. The ore averaged 44 per cent.

The heat of blast is given at 900° F., which is up to modern practice—pressure of blast not given, but presumably it kept up with the increased temperature.

Mr. Bell in the notes of his recent visit noticing a portion of the anthracite furnaces remarks, "Of course the chief subject for consideration is the

question of fuel consumption, and here I am bound to say, as a rule, the Lehigh masters are perhaps a little behind the age. In furnaces 55 feet high, with boshes of 17 to 18 feet, the anthracite used in smelting an iron ore yielding 50 per cent. with 12 cwt. of limestone, was about 35 cwts.—(1.75 gross tons.) A portion of this waste I conceive to be due to a want of sufficient heat in their blasts, which, however, by the pyrometers, always in use indicated fully 1000° F. That it really fell short of this, generally speaking, was proved by its inability to melt zinc, which fuses at a couple of hundred degrees below this temperature. The more important causes, however, must be ascribed to the insufficient height of the furnaces, but in this matter, no one can feel surprised that the iron smelters, whose fuel is anthracite should have hesitated before following the example of some English iron masters.

The latter have the advantage of using a compact and hard fuel, which comes down in large pieces to the hearth, while anthracite is apt to splinter with the heat, and requires, it is said, even in a furnace of moderate height, a pillar of blast equal to from 7 to 9 or 10 lbs. to overcome the resistance. One or two manufacturers, however, have been bold enough to venture on the erection of furnaces of 72 feet high, and their experience has proved eminently successful, for the fuel has been thereby reduced to something like 25 cwts. per ton of iron (=1.25 tons.) I do not say that with a little higher temperature in the blast and an additional height of furnace even this is not capable of a little reduction; at the same time, looking at the usual quality of their coal, I am not sure whether this must not be recorded as a very satisfactory result.

Evidently one of the high furnaces referred to in the foregoing notice is at the Glendon Iron works, Easton, Pa. Mr. Frank Firmstone reports of the furnace as follows:

Size of furnace, 18×72 feet; pressure of blast, 6 to $6\frac{1}{2}$ lbs. Ore yields 50 per cent. Anthracite coal, 129 gross tons make per week 289 tons—a very excellent exhibit of anthracite furnace work.

Bethlehem Iron and Steel Works.—Furnace No. 1, $15' \times 65'$; blast, $4\frac{1}{2}$ lbs.; anthracite coal, 1.72 tons to 1 ton Bessemer pig.

Furnace No. 2— $15' \times 45'$; blast, $4\frac{1}{2}$ lbs.; 1.84 tons of anthracite coal to 1 ton Mill pig iron.

Furnace No. 3— $14' \times 50'$; blast, 6 lbs.; 2.00 tons of coal to 1 ton Grey foundry pig.

Northampton— 16×65 feet; 1.73 tons of anthracite coal to 1 ton Bessemer; blast, 7 lbs.

Harrisburg—Lochiel furnace; 14×50 feet; 2 tons anthracite to 1 ton No. 2 Mill pig iron; blast, 4 lbs. Make 18 tons per day.

By using $\frac{1}{2}$ coke the fuel has been reduced to 1.75 tons to 1 ton pig iron. The above statements have been verified by several furnaces at Harrisburg.

The testimony of furnace men in relation to the use of coke as a mixture with anthracite coal is harmonious. One-third to one-half of coke not only produces an economy of fuel per ton of pig iron, but also improves the working of the furnaces in every way.

It is very evident that the low sizes of anthracite furnaces would be greatly benefited by the use of coke, from its swift combustion and its energy in assisting the slow acting anthracite coal, besides giving a better draft to the blast in retaining its shape without splintering.

If the best results in the economy of fuel are taken from the foregoing statistics of the working of these furnaces running on ores of equal grade, with size, blast and temperature nearly the same, it will be seen that Isabella, in ordinary work, uses 1.07 tons of coke to one ton of pig metal; whilst Glendon anthracite furnace uses 1.29 tons of coal to one ton of pig iron, exhibiting an excess of fuel in the anthracite coal over the coke of 17 per cent., and indicating from this datum, the ratio of consumption of coke to anthracite coal in furnace operations as 1; 1, 17, or, in round numbers, $1\frac{1}{2}$ tons of coke are equal to $1\frac{3}{4}$ tons of anthracite coal. This, however, does not fully indicate the economy of the coke, for it is evident that quite a saving must be induced in the work of men and salaries of officers, cost of maintaining machinery, &c., in a furnace yielding, in ordinary work, double the quantity of pig iron produced in anthracite furnaces.

These results indicate practically the relative conditions of the work of the best coke and anthracite furnaces at the present time. Comparing all the results it is manifest that the open cellular structure of the coke facilitates its rapid digestion in the furnace, whilst the anthracite coal is slow in combustion and operation. Whether these relationships of consumption of fuel and energy of work, can be equated by subsequent additions or modifications of furnaces is a question for the future. It is evident that many coke furnaces have attained the standard of economy of fuel prescribed by the chemical conditions of the materials used. Whether an addition to the altitude of the high anthracite furnace stacks would produce increased economy of fuel has also to be determined.

Probably the physical character of these fuels will, under all conditions of dimensions of furnaces, preserve about their present relationships.

In the smaller furnaces, 50 feet high and under, it appears that coke can be used with decided economy, probably requiring time from furnace men to learn the method of its most economical application.

BLOCK COAL OF MERCER COUNTY.

The Briar Hill or Block coal of the north-western corner of the State, is used in the furnaces as it comes out of the mines.

The Sharon furnaces, about 50 feet high, consume $2\frac{1}{4}$ to $2\frac{1}{2}$ tons of coal to one ton of pig iron from 66 per cent Lake Superior ores. Pressure of blast, seven pounds. In most of these furnaces, however, coke is used varying in proportion from one-sixth to one-fourth, one-half and three-fourths; the increased quantities being used in closed top furnaces. This requirement of a portion of coke appears to be a general law in the use of block coal. Mr. E. C. Garlick, of Brazil, Indiana, writes in regard to the use of the celebrated block coal of his State: "It works as well raw as any bituminous coal, but in furnaces of the size of ours, 62×15 feet, it is desirable to use a small quantity of coke to keep the furnace open and to enable it to take the blast with greater freedom." The coke used at this place, a sample of which was kindly forwarded me, is made from the block coal in Beehive ovens, it is really a charred coal, as the structure of the coal is unchanged; the laminae preserving their plane lines very distinctly.

On the whole, it appears to be an excellent furnace fuel, the only practical question which it suggests is, whether it would not be more economical to coke all the coal for furnace use. So far, in practice, the fact has been shown that it requires two tons of this quality of coal to do the work of one ton of coke. And not only is the draft of a furnace improved by using a portion of coke, but "it insures regularity in the working of the furnace, and we also derive benefit from its use in the faster driving of the furnace, thus saving in the cost of labor to the ton of iron." The purity of the block coal and the metal made by it are unexceptional.

The Hocking Valley coal of Ohio, is also used in the furnace raw, under nearly the same conditions as the Indiana block coal, only that in the former case the thickness of the coal is greater. The seam on Sunday Creek is fully thirteen feet thick, of excellent quality and can be used in the furnace as it comes from the mines; and from the great thickness of the seam, a great degree of economy is induced in its production. Zanesville furnace, 16×65 feet, blast $3\frac{1}{2}$ pounds, temperature of blast, 750° F., makes 35 tons per day of No. 1 forge pig iron, from a mixture of one ton of native carbonate calcined ore, 1,120lbs lake Superior specular ore and 746lbs mill cinders, consuming to one ton pig, 1.14 tons of Hocking Valley coal, and 0.63 tons of coke, which indicate very good results.

In closing, it would be instructing to compare the energy of the three classes of fuel—anthracite coal, coke and block coal—in the work of smelting pig iron in a blast furnace, under conditions favorable to each quality. A difficulty arises from the fact of the block coal being used with varying mixtures of coke, so that an estimate of this class must be somewhat approximate.

Taking the production of Lucy or Isabella furnaces at 550 tons per week, which is a very moderate estimate, the product would be one ton in every

twenty-four hours to every 156 cubic feet internal capacity. Bennington furnace, producing Bessemer pig for Cambria iron company, gives one ton every twenty-four hours to every 166 feet internal capacity.

These indicate the averages of the work of furnaces running on coke, when applied under conditions to produce true results. The average exhibiting the production of one ton of pig iron each twenty-four hours to every 161 cubic feet of internal capacity of furnace.

Taking the anthracite furnaces of the heights of 50, 60 and 70 feet as producing 200, 250 and 300 tons of pig iron per week respectively, the internal capacity of furnace required to produce one ton of pig metal per twenty-four hours will be as follows: 185, 195 and 256 cubic feet, exhibiting an average of the class of 212 cubic feet.

The determination of the internal space in block coal furnaces to each ton of pig iron produced per day is rendered difficult by the coke mixtures; it should be found ranging between the coke and anthracite spaces, perhaps more nearly approaching the latter, say from 180 to 190 cubic feet.

The average relative energies, therefore, of these three furnace fuels, under the present conditions of application, appears to be as follows: Coke, 161; block coal and coke, 185, and anthracite coal 212 cubic feet.

In the collection of data I have been cordially assisted by Franklin Platt, Esq., Assistant Geologist, second Pennsylvania geological survey, and by his associate, C. A. Young, Esq.

Thomas T. Morrell, Esq. chemist Cambria iron company, has laid me under renewed obligations for valuable assistance.

The determinations for the table exhibiting the physical structure of coke, were made by my associate, David Peelor, Esq.

Mr. Robert P. Field, my assistant, has been industrious in making and copying drawings for this paper.

ANALYSES OF BITUMINOUS COAL.

The following tables, giving the analyses of bituminous coal, were prepared by Prof. Andrew S. M. Creath, of Harrisburg, and published in his *Report of Progress in the Laboratory of the Geological Survey, at Harrisburg*

ANALYSES OF COKES.

NAME AND LOCALITY.	Water.....	Volatile matter.....	Fixed carbon.....	Sulphur....	Ash.....	Color of Ash.	Description.
Penn Colliery, Houtzdale, five and half miles south-west of Osceola. Coked in open air roughly.....	.600	2.020	88.032	.998	8.350	Red.....	Very hard, with silvery lustre.
Mapleton Colliery, on Shimmel's run, one and a half miles north of Osceola. Coked in open air roughly.	.580	1.370	81.068	1.032	12.450	Red.....	Slaty, shining, iridescent.
Laurel Run Colliery, on Shimmel's run, two miles north, north-west of Osceola. Coked in open air.	.510	1.300	89.243	.607	8.340	Reddish.....	Compact, silvery lustre.
Decatur Coal Company's Colliery, one and a half miles north of Phillipsburg. Coked in open air...	.350	2.190	90.223	.837	6.200	Red.....	Compact, dull gray, slaty.
Morrisdale Mine, three miles north-west of Phillipsburg. Coked in open air.....	.250	.730	90.707	.643	7.670	Red.....	Compact, gray, slaty.
Snow Shoe Railroad Company's Colliery, Mine No. 6, Middle bed. Coked in open air from loose stuff...	.990	2.950	82.626	1.104	12.230	Red.....	Compact, dull, gray, very slaty.
Diamond (D. Reynold's) Mine, one mile north of Reynoldsville. From six foot bench of coal.....	.500	1.150	88.478	1.022	8.850	Cream.....	Hard, compact, shining, slaty.
Hoover's Mine, (Ohio Company.) Coked from coal of six foot bench in open air.	.780	1.420	88.950	.900	7.950	Reddish Gray	Compact, slaty, & comparatively soft. Slightly iridescent.

PHOSPHORIC ACID IN COALS.

	Per cent. in coal.	Per cent. in ash.
Penn colliery, Houtzdale .....	.007	.174
Franklin colliery, Houtzdale .....	.005	.047
Eureka mine, Houtzdale .....	.013	.342
Stirling mine, Houtzdale .....	.005	.159
Moshannon mine, Houtzdale .....	.006	.162
New Moshannon mine .....	.005	.124
Mapleton colliery .....	.013	.253
Logan colliery .....	.237	3.098
Laurel Run colliery .....	.011	.366
Decatur coal company's colliery	trace.	trace.
Morrisdale mine—lower bench .....	.047	1.516
Morrisdale mine—upper bench .....	.022	.830
Derby colliery .....	.033	.397
Powelton mine	trace.	trace.
William Holt's mine—lower hard part of bench .....	.013	.273
Snow Shoe mine, No. 4—lower bench .....	.020	.191
D. Reynold's (Diamond) mine—upper part of six foot bed worked,	trace.	trace.
Webster mine	trace.	trace.
Hoover's mine, (Ohio company)—Middle of six foot bench worked, .....	.008	.166
Hoover's mine—upper part of six foot bench worked .....	.071	1.145

IRON AND SULPHUR IN COAL.

	Per ct. of sulphur,	Per cent. of iron..	Sulphur required by iron to form iron pyrites, (Fe S ₂ ,)	Difference	Sulphur left in coke	Per cent. of sul- phur in coke.....
Decatur Coal Company's Colliery. Coal from upper bench.	1.373	.595	.680	.693	.842	1.118
Penn Colliery, Houtzdale .....	.507	.245	.280	.227	.264	.336
Franklin Colliery, Houtzdale .....	.875	.581	.664	.211	.328	.414
Eureka Colliery, Houtzdale .....	.688	.392	.448	.240	.451	.581
Mapleton Colliery, on Shimmel's run, one and-a-half miles north of Osceola	1.715	1.099	1.256	.459	.568	.750
Logan Colliery, on Shimmel's run, two miles north, north-west of Osceola .....	.867	.525	.600	.267	.628	.813
Decatur Coal Company's Colliery. Coal from lower bench	3.378	2.485	2.840	.538	.....	.....
Morrisdale Mine, near Phillipsburg.....	.571	.245	.280	.291	.302	.400
Powelson Mine. Lower part of bench	2.691	1.488	1.700	.991	.....	.....
Seely's Bank. Bottom of six foot bench, (worked,) .....	.736	.154	.176	.560	.....	.....
Hoover's Mine, (Ohio Co.) Lower part six foot bench, (worked,) .....	.726	.294	.336	.432	.....	.....
Brown's Mine, four miles south-east of Reynoldsville.....	3.885	3.395	3.880	.005	2.220	3.118
Mason's Mine, one and-a-half miles west of Clearfield	4.232	3.780	4.320	.000	3.140	4.067
Webster Mine, five miles south-west of Osceola .....	.425	.189	.216	.209	.271	.354
Hum's Mine, one and-a-half miles north-west of Punxatawney .....	.818	.434	.496	.352	.390	.613
Weaver's Mine, two miles north-west of Punxatawney	2.042	1.428	1.632	.410	1.763	2.687
Mongold's Mine, four miles south-east of Troutville	2.288	1.120	1.280	1.008	.920	1.362
P. Galusha Mine, two and-a-half miles north-west of Brockwayville	7.611	3.570	4.080	3.531	3.456	5.498
Do.....do.....do.....2d sample	8.350	3.390	4.100	4.250	4.510	7.158

ANALYSES OF ASH OF COAL.

	Silica.....	Oxide of iron...	Alumina.....	Lime.....	Magnesia.....	Phosphoric acid,	Sulphur.....	Per cent. of ash in coal.....
Penn Colliery, Houtzdale.....	2.040	.350	1.140	.136	.032	.007	.....	4.020
Eureka Mine, Houtzdale.....	1.660	.560	1.360	.134	.046	.013	.....	3.800
Mapleton Colliery, one and a half miles north of Osceola.....	1.675	1.570	1.480	.221	.151	.013	.....	5.130
Logan Colliery, two miles north, north-west of Osceola.....	3.493	.750	2.700	.302	.168	.237	.....	7.650
Pecatur Coal Company's Colliery, one and a half miles north of Phillipsburg.....	2.100	3.550	1.550	.090	.206	trace	.....	7.540
Morrisdale Mine, three miles north, north-west of Phillipsburg.....	1.450	.350	.500	.260	.198	.017	.051	3.100
Poyvelton Mine, three miles south-east of Osceola. Lower part of bed.....	1.460	2.480	1.050	.180	.169	trace	.082	5.400
Seley's Bank, three miles east of Reynoldsville.....	1.860	.220	1.760	.060	.162	.....	.....	4.150
Hoover's Mine, (Ohio Co.,) Reynoldsville. Lower part of six foot bench worked..	1.220	.420	1.215	.120	.090	.008	.....	3.100

REMARKS.

Water.—In glancing at the general results obtained, the exceedingly low percentage of water found in these coals is a very striking point, and in this respect they compare very favorably with the bituminous coals of other States. The average per cent. of water in one hundred and forty-nine samples of Ohio coals, as shown by Prof. Wormley's analyses, is 4.65. Prof. White gives 8.57 as the average percentage of water of sixty-four samples of Iowa coals, and the analyses of Mr. Régis Chauvenet* give 3.40 as the average of one hundred and twelve specimens from Missouri. The ninety-seven samples here examined show only 1.03 as the average percentage of moisture. The hygroscopic water is not only of no advantage as combustible matter, but, it actually diminishes the effective value of the fuel, as much heat is lost in transforming the water into steam, and thus expelling it. The accurate determination, therefore, of the amount of moisture in a coal becomes a point of considerable importance. It was found that exposure at a temperature of 212° F. was insufficient to dry some of the coals thoroughly, so that the test was always made at 225° to 230° F. The average of sixty-six coals dried at 212° F., gave 0.786 per cent. water; dried at 225° F. the average was 0.851. Many of the specimens showed a very marked difference, in one or two cases amounting to over a quarter of one per cent.

Prof. Wormley states as a singular fact, true at least of most Ohio coals, that at a temperature of 240° F., the powdered coal generally loses *less* in weight, in a given time, than at a temperature of 212°. If, therefore, a coal be thoroughly dried at 212°, and then be exposed to a heat of 240°, it will generally quickly increase in weight, due to the absorption of oxygen. This was not found to be the case with the coals I examined from this State, for in every instance was the loss greater when the coal was dried at 225° than at 212°. It is probable, therefore, that the porous, wet coals of Ohio have a greater capacity for the absorption of oxygen than the compact and comparatively dry coals of Pennsylvania. This is an interesting point when we consider the weather waste of coals. It was found that when coal was exposed to the air, it slowly parted with a considerable portion of its moisture. One sample which, when freshly mined, contained 1.94 per cent. water, when exposed to an ordinary temperature for one month was found to contain only 0.52 per cent., and this amount it retained, with only slight variations, due probably to the hygroscopic changes in the atmosphere during the six months it was examined. A number of experiments would be necessary to determine this point, but the one example here given may serve as some criterion by which to judge the extent of drying the

*Missouri Geological Survey, Chemical Report for 1874.

different coals have undergone by being kept in an ordinary atmosphere for several months.

Ash.—The relative amount of ash found in the bituminous coals examined, varies from 1.52 per cent. found in the coal from Hum's mine, Jefferson county, to 19.17 per cent. existing in the coal from the upper bench (not worked) of the Diamond colliery. The average of ash found in thirty-four coals from Clearfield county was 5.30 per cent.; that of five from Centre county, 5.38 per cent. Thirty-seven coals from Jefferson county gave 5.45 per cent. as the mean average of ash. In cases where excessive heat is required in the combustion of the coal, the character and quality of the ash is a point of the highest consideration. Its color affords a good indication as to its composition, a large amount of oxide of iron giving it a brown or reddish brown color. The best and most infusible are those of a white color, consisting essentially of silica and alumina, with little iron, lime or magnesia. A few analyses of the ashes have been made, which will give some idea as to their average composition.

Phosphoric acid.—It will be noticed that a small amount of phosphoric acid is invariably present. The mean average from sixteen coals gave .032 per cent. phosphoric acid, which is equal to .014 per cent. phosphorus. A specimen of coal from the Logan Colliery gave .237 per cent. phosphoric acid, an amount fatal to this coal for use in the manufacture of Bessemer pig iron. Hitherto iron men have paid but little attention as to the freedom of their fuel from this most injurious element. In the manufacture of iron for the Bessemer process, where even a small amount of phosphorus is injurious, pure fuel becomes as much a matter of necessity as pure ores. Although the presence of phosphoric acid in the ashes of coal is a decided disadvantage to their use in the manufacture of iron, it becomes a point of the highest consideration when we view them in relation to their value for enriching impoverished tracts of land. The small amount of potash and soda we invariably find present, adds much to their value in this respect. To the farmer, therefore, the coal ashes are important, as, apart from their own intrinsic value as a fertilizer, they possess considerable absorbent powers, and may be made the vehicle for the application of liquid manures.

Volatile matters.—The amount of volatile combustible matter found in the coals examined, varies from 19.57 per cent. to 40.80 per cent. The mean average of thirty-four coals from Clearfield county gave 23.64 per cent. volatile combustible matter; that of five coals from Centre county, 23.81 per cent. Thirty-seven specimens from Jefferson county gave 32.60 as the mean average per cent. The average of three specimens from Clarion county gave 39.14 per cent. volatile matter; that of six from Armstrong county, 34.99 per cent.

Many of the coals from Clearfield and Centre counties are known in the

market as *semi-bituminous*, but their large percentage of volatile matter, as compared with standard semi-bituminous coals of the Broad Top region, entitles them to rank as true bituminous coals.

Fixed Carbon.—The average per cent. of fixed carbon in the Clearfield county coals examined, is 68.96 per cent.; that of Centre county coals 68.98 per cent., and that of Jefferson county coals 59.27 per cent.

Sulphur.—The relative amount of sulphur found in the different coals examined, varied from .425 per cent., found in the coal from the Webster colliery, to 8.427 per cent. present in the coal from the lower bed of the Fairmount colliery. The mean average of the thirty-four coals from Clearfield county gave 1.36 per cent.; that of five specimens from Centre county .767 per cent.; that of thirty-seven from Jefferson county 1.518 per cent. Armstrong county coals gave 1.57 per cent. as the average, and Clarion county coals yielded 3.30, as the mean average per cent. of sulphur.

Prof. Wormley, of the Ohio State Geological Survey, has shown that many coals which contain but little iron, have yet a large percentage of sulphur. It has hitherto been supposed that the sulphur in coal existed in one of two forms, as bisulphide of iron or iron pyrites, and sulphate of lime or gypsum. Prof. Wormley's experiments, however, have proved conclusively that a large proportion of the sulphur found in coals exists not in union with iron or lime, but as some organic compound, the exact nature of which has not been fully determined. A number of analyses made of the Pennsylvania coals for iron and sulphur, shows that the sulphur in most cases is largely in excess of the amount required to convert the iron in iron pyrites. In only two instances does all the sulphur seem to exist as bisulphide of iron. In the coal from Galusha's mine, Jefferson county, the amount of "free sulphur," that is, the sulphur not taken up by the iron to form iron pyrites, (Fe S_2), amounts to 3.53 per cent. This question is of equal importance to the coke manufacturer and to the manufacturer of gas, for while it is possible that the sulphur existing in the coal as iron pyrites may be partially washed out, it is scarcely probable that that portion existing as some organic compound can be got rid of in that way. The proportion of the sulphur which passes off with the volatile matter during the process of coking, seems to vary considerably. Prof. Wormley, to whom we are indebted for much valuable information on this subject, gives two instances of coals containing respectively .49 and .93 per cent. of sulphur, of which there remained in the coke only .082 and .015 parts. On the other hand, another sample of coal containing .98 per cent. of sulphur, of which about 90 parts existed uncombined with iron, retained .66 parts in the coke. Of the fourteen coals I examined from this State for sulphur after coking, nearly all of them were found to retain a large proportion in the coke; and in no case did the loss by coking exceed two-thirds of the

sulphur originally present in the coal. In one coal, where all the sulphur, 3.88 per cent., existed as pyrites, there remained in the coke 2.22 parts, so that 1.66 parts of the sulphur passed off with the volatile matters during the process of coking. A specimen of coal from the Galusha mine, containing 7.61 per cent. of sulphur having 5.53 parts as "free sulphur" and 4.08 parts existing as iron pyrites, lost by coking 4.15 parts of sulphur. A second sample of the Galusha coal, with 4.25 parts "free sulphur," lost by coking (the average of two experiments,) only 3.84 parts of sulphur.

It has been stated* "that where the sulphur in coal is not combined with iron, but with the volatile portion of the coal, it passes off in coking or in ordinary combustion." The single example of the Galusha coal containing 4.25 parts sulphur not combined with iron, and which lost by coking only 3.84 parts sulphur, would seem to indicate that this statement could not be made of general application. From a number of experiments made with the coals from this State, it does not appear that the sulphur, where it exists in the same coal both as pyrites and "free sulphur," passes off with the volatile matters during the process of coking in much larger proportion than in cases where it all exists as pyrites. A large number of carefully conducted experiments will be necessary to determine what conditions are most favorable for expelling the sulphur during the process of coking.

Carbonate of lime in coal is said to have a very marked effect in retaining the sulphur in the coke and preventing its passing off with the volatile matters during the process of coking. To the gas manufacturer, therefore, this question is one of very great importance, as it might permit the use of coals otherwise too rich in sulphur for the economical production of a high quality of illuminating gas.

In order to test the point, the following experiments were made: A coal, rich in sulphur, was coked in a platina crucible in the usual way and the amount of sulphur left in the coke estimated. The same coal was then coked with the addition of a certain percentage of carbonate of lime and the sulphur estimated in the resulting coke. It may be stated as an interesting point that the coke produced by coking the coal with carbonate of lime, gave off a strong odor of sulphuretted hydrogen gas, whereas the coke produced from the same coal without the addition of carbonate of lime gave no smell of sulphuretted hydrogen. The results of the experiments are embodied in the following table:

Sulphur in coal = 8.35 per cent.	Coked with 5 per cent. carbonate of lime.....	Coked with 10 per cent. car- bonate of lime	Coked with 5 per cent. lime....	Coked with no addition.....	Coked with no addition.....
Sulphur left in coke	4.846	5.046	5.611	4.537	4.488

*Coal regions of America. Macfarlane, page 154.

THE WEATHER WASTE OF COAL.

The changes which a coal undergoes by exposure to the weather, is a question of equal importance to the miner and to the consumer of coal. It has generally been supposed that bituminous coals part with a large amount of their volatile combustible matter, and otherwise deteriorate very much in quality by exposure to the weather. This waste depends on their power to absorb oxygen, causing the coal to undergo a slow combustion, converting the hydro-carbons into water and carbonic acid. The presence of moisture is also said to be an important condition. Mr. Richard P. Rothwell, M. E., in an article on "Alabama coal and iron,"* gives us the following points in regard to the weather waste of different coals: * * *

"It is also essential that the coal be freshly mined, for experiments have been made that show that the deterioration which a coal undergoes by even a very limited exposure to the atmosphere is quite considerable. For example: According to Dr. Richter, the weather waste of a coal depends on its ability to absorb oxygen, converting the hydro-carbons into water and carbonic acid. Grundman found that coal exposed for nine months to the atmosphere, lost 50 per cent. of its value as a fuel. He states that the decomposition takes place in the middle of a heap the same as at the surface, and it reached its maximum about the third or fourth week; and one-half the oxygen was absorbed during the first fourteen days. He also found that a coal poor in oxygen absorbs it most rapidly, and that the presence of moisture is an important condition. Coal which made, when freshly mined, a good compact coke, after eleven days exposure, either would not coke at all, or it made an inferior coke. For gas purposes the coal is also greatly injured by the loss of its volatile hydro-carbons.

"Varrentrapp, of Brunswick, found in his experiments that oxidation of the coal takes place even at common temperature, where moisture is present. Coal exposed to a temperature of 284° Fah. for three months lost all its hydro-carbons, a fact which shows that the conversion of bituminous coal into anthracite was not necessarily accompanied by a high temperature. He found also that the weather waste in some cases amounted to 33 per cent., and in one instance the gas yielding quality decreased 45 per cent., and the heating power 47 per cent., while the same coal under cover lost in the same time but 24 per cent. for gas purposes, and 12 per cent. for fuel.

The harder varieties of bituminous coal, such for example as the cannel and splint coals of West Virginia, Ohio and Indiana, do not appear to lose much by exposure to the atmosphere, except it be in heaps of slack where the conditions are favorable for the generation of a high temperature. Anthracite appears to be still less affected by exposure, for the fine coal which

*The Engineering and Mining Journal, Vol. XVII, No. 4, page 51. 1874.

has lain for the past twenty years in our culm banks, exposed to the rain, and under conditions the most favorable for decomposition, being mixed with shales containing a large amount of iron pyrites, which in decomposing generate a very high temperature in the whole mass, is yet found to burn well, almost as well as that freshly mined, while the large lump coal has been used in our blast furnaces after an exposure of twelve years, and no perceptible difference in its quality could be noticed. It is nevertheless quite certain that most varieties of bituminous coal deteriorate very rapidly and to an extent but little appreciated. These important results should be borne in mind, not only in providing for the storage of coal, but also in selecting samples for analysis.

Sufficient time has not been allowed during the present survey to collect the mass of facts necessary for a proper discussion of the coals of this State as to their weather waste, but the few analyses already made are given underneath in the hope that they may serve to throw some light on this interesting subject, and at the same time show that the general impression that all bituminous coals lose part of their volatile combustible matter by exposure to the weather, does not hold good, at least, in so far as the compact and dry bituminous coals of Pennsylvania are concerned.

The German Railway Association have had different coals exposed to the weather for twelve months, and then re-examined, and the results of their experiments are here added for the sake of comparison.

WEATHER WASTE IN COAL.

BITUMINOUS COAL FROM THE FRANKLIN COLLIERY.		Freshly mined coal.	After being weathered for six months.
Water		1.942	1.060
Volatile matter		22.720	22.700
Fixed carbon		71.018	72.075
Sulphur .....		.553	.515
Ash		3.777	3.650
		100.000	100.000
Coke per cent		75.340	76.240

BITUMINOUS COAL.	APRIL.	MAY.		JUNE.	
	Free dry mine d a l.	Covered....	Weathered.	Covered....	Weathered.
Water	1.942	.520	.965	.590	.700
Volatile matter	22.720	22.830	21.715	22.830	22.450
Fixed carbon	71.561	72.770	73.880	72.020	72.650
Ash	3.777	3.880	3.440	4.560	4.200
	100.000	100.000	100.000	100.000	100.000
Coke, per cent	75.340	76.650	77.320	76.580	76.850

BITUMINOUS COAL.	JULY.		AUGUST.	SEPT'R.
	Covered....	Weathered.	Weathered.	Weathered.
Water.....	.565	.935	.780	1.060
Volatile matter.....	23.090	22.500	22.980	22.700
Fixed carbon.....	71.980	72.455	72.300	72.590
Ash.....	4.356	4.950	3.940	3.650
	100.000	100.000	100.000	100.000
Coke, per cent.....	76.350	76.510	76.240	76.240

GAS COAL.	Freshly mined.	After exposure for 3 months.
Water.....	1.030	.810
Volatile matter.....	38.230	38.520
Fixed carbon.....	52.561	52.350
Sulphur.....	1.709	1.690
Ash.....	6.470	6.630
	100.000	100.000
Coke, per cent.....	60.740	60.670

GAS COAL.	JULY.	AUGUST.	SEPT.
	Freshly mined.	Weather'd	Weather'd.
Water.....	1.030	.760	.810
Volatile matter.....	38.230	38.017	38.520
Fixed carbon.....	54.270	54.403	54.040
Ash.....	6.470	6.820	6.630
	100.000	100.000	100.000
Coke, per cent.....	60.740	61.220	60.670

GERMAN RAILWAY ASSOCIATION'S EXPERIMENTS.

NAME OF COAL.	After exposure of the coals for twelve months, the following losses were determined :		
	Weight per cent.	Caloric per cent.	Yield of coke per ct.
Pease's West Hartley, coking.....	0.0	0.0	0.0
Glucksburg seam, Ibbenbüren.....	1.4	6.0	4.6
Carl mine, near Dortmund.....	.....	2.6	2.1
Hibernia mine, Gelsenkirchen.....	0.4	0.6	2.1
Constantin mine, Bochum.....	0.4	0.4	0.0
Borgloke mine, Osnabrück.....	2.0	6.0	0.5

By glancing at the tables given above, it will be seen that the coals tested have not changed materially in their chemical composition, even after an exposure of several months. Weathering the coal may have a very decided effect in eliminating the sulphur. A quantity of coal containing 1.86 per cent. of sulphur, existing chiefly as iron pyrites, was put into a glass funnel, the neck of which was loosely filled with pieces of glass, and exposed to the action of the weather for several weeks. The funnel was so arranged that the rain water filtering through the coal was collected in a glass beaker underneath. On examination of the solution it was found to contain considerable ferrous and ferric salts, with quite a large amount of sulphuric acid.

The decomposition of the pyrites in coal is attended by the generation of considerable heat which will have the effect of disintegrating the coal, unfitting it for bearing transportation equally well. This question will be an important one in considering the weather waste of coals in all its bearings. A long series of experiments will be necessary to determine under what conditions oxidation of the coal takes place most readily. It is probable that porous, spongy coals having a large percentage of water, may also possess a greater capacity for the absorption of oxygen, and consequent weather waste.

No attempt has been made at a discussion of the different coals as to their steam raising powers, but as their chemical composition bears some relation to their heat producing qualities, the analyses given in the preceding pages are here grouped together for convenience of comparison, followed by a condensed table taken from Prof. Johnson's elaborate experiments to the United States Navy Department.

COALS.

NAME OF COLLIERY.	Water.....	Volatile matter..	Fixed carbon....	Sulphur.....	Ash.....	Color of Ash.	Coke, per cent..
<i>Clearfield County.</i>							
1. Penn Colliery.....	.810	20.640	74.023	.507	4.020	White.....	78.550
2. Franklin Colliery.....	1.942	22.720	71.018	.543	3.777	Cream.....	75.340
3. Fureka Mine.....	.780	21.680	73.052	.688	3.800	Gray.....	77.540
4. Stirling Mine.....	.710	23.400	72.218	.532	3.110	Gray, with red tinge.....	75.890
5. Moshannon Colliery.....	.765	20.090	74.779	.666	3.700	do.....do.....	79.145
6. New Moshannon Mine.....	1.100	23.070	71.199	.611	4.020	Red.....	75.830
7. Hale's Colliery, Upper bed.....	.570	24.630	68.400	1.900	4.500	Gray, with red tinge.....	74.800
8. Hale's Colliery, Lower bed.....	.740	25.210	68.628	2.122	3.300	Red.....	74.050
9. Mapleton Colliery.....	.700	23.565	68.890	1.715	5.130	Gray.....	75.735
10. Logan Colliery.....	.620	22.135	68.728	.867	7.650	Gray.....	77.245
11. Laurel Run Colliery.....	.800	23.260	72.350	.340	3.000	Red.....	75.940
12. Decatur Coal Co.'s Colliery, Lower bench.....	.640	24.360	61.082	3.378	7.540	Gray, with red tinge.....	75.000
13. Decatur Coal Co.'s Colliery, Upper bench.....	.820	23.900	69.007	1.373	4.900	do.....do.....	75.280
14. Morrisdale Mine, Lower bench.....	.550	24.080	71.689	.571	3.100	Gray.....	75.360
15. Morrisdale Mine, Upper bench.....	.560	25.190	71.013	.587	2.650	Salmon.....	74.250
16. Derby Colliery.....	.410	22.810	66.690	1.790	8.300	Gray, with red tinge.....	76.780
17. Reiter's Colliery, Upper bed.....	.630	24.630	70.396	.654	3.690	Red.....	74.740
18. Mon's Mine.....	.750	19.570	69.833	.677	9.170	Gray, with red tinge.....	79.680
19. Hill's Mine.....	.380	22.280	67.995	2.455	6.890	Dirty gray, with red tinge.....	77.340
20. Humphrey's Mine.....	.410	21.800	72.903	1.087	3.800	Red.....	77.790
21. Mason's Mine, Upper bench.....	.550	22.650	72.616	1.334	2.850	Red.....	76.800
22. Mason's Mine, Lower bench.....	.480	22.320	59.788	4.232	13.180	Pinkish.....	77.200
23. G. W. Davis' Mine.....	.640	23.010	71.799	.651	4.000	Red.....	76.350
24. Jeremiah Cooper's Mine.....	.760	24.020	64.951	1.639	8.630	Red.....	75.280
25. Williamson's Mine.....	.620	22.730	68.794	1.576	6.280	Gray.....	76.650
26. Powelton Mine, Lower part of bed.....	.600	22.600	67.691	2.691	5.400	Gray, with pink tinge.....	76.800
27. Powelton Mine, Upper part of bed.....	.540	22.560	71.551	1.079	4.270	Light gray.....	76.900
28. Webster Colliery.....	1.630	22.815	72.815	.425	3.130	Gray, with slight red tinge.....	76.370
29. Bell's Mine.....	.950	32.450	59.904	1.296	5.400	Gray.....	66.600
30. Tyler's Mine.....	.940	31.030	61.563	1.487	4.950	Gray, with red tinge.....	68.000

31. R. Shaw's Mine.....	870	21,680	68,928	1,302	7,220	Pinkish.....	77,450
32. J. Shaw's Mine.....	520	31,030	67,133	767	10,550	Reddish gray.....	78,450
33. Mongold's Mine.....	860	31,600	61,632	2,228	3,590	Brown.....	67,540
34. Hubler's Mine.....	420	25,010	67,221	2,479	4,870	Pink.....	74,570
<i>Centre County.</i>							
1. Snow Shoe Mines. Upper bed. Mine No. 5.....	1,280	25,530	68,937	4613	3,590	Cream.....	73,140
2. Snow Shoe Mines. Middle bed. Mine No. 6.....	650	24,560	70,416	934	3,410	Cream.....	74,790
3. Snow Shoe Mines. Lower bed (B). Mine No. 4.....	750	23,440	64,374	936	10,450	Gray, with red tinge.....	76,800
4. Wm. Holt's Mine, west of Holt's Hill.....	880	23,620	70,089	661	4,750	Red.....	75,500
5. Wm. Holt's Mine, Snow Shoe basin. Up. b'h.....	1,680	21,870	71,108	612	4,730	Red.....	76,450
<i>Jefferson County.</i>							
1. Seley's Bank. Upper bench.....	850	31,200	59,882	1,338	6,700	Dirty gray, with red tinge.....	67,950
2. Seley's Bank. Middle bench.....	1,040	31,610	62,464	736	4,150	Gray, with red tinge.....	67,350
3. Seley's Bank. Lower bench.....	960	32,320	58,640	1,230	6,850	Gray, with pink tinge.....	66,720
4. Shiesley's Bank. Upper bench.....	1,000	30,700	63,791	639	3,270	Red.....	67,700
5. Shiesley's Bank. Lower bench.....	1,480	29,220	65,022	3,101	3,670	Gray, with red tinge.....	69,300
6. Diamond Colliery. Up'r bench, { not	1,100	29,990	46,639	3,101	19,170	do.....do.....	68,910
7. Diamond Colliery. Mid. bench, { worked }	1,190	32,810	55,316	2,284	8,400	Gray, with pink tinge.....	66,000
8. Diamond Colliery. Lower b'ch. Mid. port'n.....	950	35,130	59,304	1,436	3,180	Dirty gray.....	63,920
9. Diamond Colliery. Lower b'ch. Low. port'n.....	1,120	33,860	60,692	1,278	3,050	Gray with red tinge.....	63,020
10. Hoover Bank. Upper bench.....	9,60	32,680	59,097	1,653	6,200	do.....do.....	66,360
11. Hoover Bank. Middle bench.....	1,100	30,800	62,524	776	4,800	Cream.....	68,100
12. Hoover Bank. Lower bench.....	1,100	32,900	62,174	736	3,100	Cream.....	66,000
13. Sprangue's Mine.....	1,430	31,940	62,109	531	3,990	Cream.....	66,630
14. Wachob's Mine.....	1,300	32,570	62,567	1,023	2,540	Red.....	66,130
15. J. Thomas' Mine.....	1,950	31,590	60,520	1,440	5,500	Dirty gray.....	67,460
16. Anthony's Mine.....	950	35,870	58,218	2,392	2,660	Red.....	63,180
17. P. Hawk's Mine.....	950	33,550	60,523	1,167	3,810	Reddish brown.....	65,500
18. Rath's Mine.....	1,050	34,140	61,172	1,018	2,950	Cream.....	64,800
19. Pantall's Mine.....	1,100	31,170	63,544	1,676	3,170	Yellowish brown.....	67,730
20. M'Kee's Mine.....	1,050	33,159	58,405	1,295	6,100	Gray.....	65,800
21. Weaver's Mine.....	1,000	33,200	59,428	2,012	4,330	Brown, red tinge.....	65,800
22. Wingert's Mine.....	1,150	32,070	60,428	1,702	4,650	Pawn.....	66,780
23. Hum's Mine. Upper bench.....	920	35,440	59,962	848	2,830	Brown.....	63,640
24. Hum's Mine. Lower bench.....	1,100	33,260	63,081	1,139	1,520	Brown.....	65,740
25. W. Reynolds' Mine.....	1,440	32,460	63,011	639	2,450	Cream.....	63,100
26. Sharp's Mine. Upper bench.....	1,320	31,440	62,578	892	3,770	Gray.....	67,240
27. Sharp's Mine. Lower bench.....	1,570	33,430	61,285	1,055	2,650	Brown.....	65,000
28. London Mine.....	1,150	27,705	65,835	930	4,330	Red.....	71,140
29. Strouse's Mine.....	1,300	30,220	63,617	703	4,100	Leadender.....	68,480
30. Creek, Reynoldsville.....	800	32,020	51,887	3,593	11,700	Gray, with red tinge.....	67,180

COALS—CONTINUED.

NAME OF COLLIERY.	Water	Volatile matter,	Fixed carbon ...	Sulphur	Ash	Color of Ash.	Coke, per cent..
<i>Jefferson County—Continued.</i>							
31. Brown's Mine	1.010	27.790	48.365	3.885	18.950	Gray, with pink tinge	71.200
32. Wm. McCullough's Mine	1.320	33.930	53.905	1.505	9.350	do. do	64.760
33. S. Patten's Mine	1.870	32.450	61.103	.547	4.030	Cream	65.680
34. J. Stewart's Mine	1.830	34.270	58.353	1.767	4.780	Gray	63.900
35. J. Calhoun's Mine	1.200	33.630	55.795	1.504	7.870	Gray	65.170
36. Key's Mine	1.360	38.730	53.683	2.047	4.190	Red	59.920
37. P. Galusha's Mine	1.150	36.000	48.099	7.611	7.140	Red	62.850
<i>Armstrong County.</i>							
1. Red Bank Colliery, Cannel. ....	.510	30.490	46.194	.576	22.230	Gray	69.000
2. Red Bank Colliery, Cannel .....	.730	31.680	48.815	.455	17.330	Yellow	67.590
3. Red Bank Colliery, Below Cannel	1.650	39.120	52.716	2.634	3.880	Brown	59.230
4. Red Bank Colliery, Middle bed	1.690	35.944	53.950	3.380	5.040	Gray	62.370
5. Red Bank Colliery, Upper bed	1.840	35.940	53.661	1.739	6.820	Gray	62.220
6. Thompson's Mine	1.540	36.730	53.210	.630	7.890	Light yellow	61.730
<i>Clatsop County.</i>							
1. Fairmount, Big bed	1.320	40.800	52.879	.881	4.120	Gray, with red tinge	58.880
2. Fairmount, Big bed	1.700	38.930	56.093	.604	2.670	Cream	59.370
3. Fairmount, Lower bed	1.370	37.680	39.353	8.427	13.170	Red	60.950

STEAM RAISING POWER OF COALS.
Results of United States Government experiments in burning coal under a steam boiler

NAMES OF COALS IN THE ORDER OF EVAPORATIVE POWER UNDER EQUAL BULKS.	COMPOSITION IN 100 PARTS.						EFFICIENCY.	
	Water	Volatile matter	Fixed carbon	Sulphur	Ash.....	Coke	Pounds of steam produced from water at 212° by 1 lb of fuel...	Relative evaporative power for equal bulks of coal
1. Atkinson & Templeman's.....	446	15.532	76.688	.....	7.334	84.022	566.2	1.000
2. Beaver Meadow. Slope No. 5 .....	.892	3.604	90.355	0.052	5.149	95.504	556.1	.982
3. Peach Mountain.....	1.897	2.958	89.020	0.006	6.125	95.145	545.7	.964
4. Forest Improvement.....	1.785	3.050	90.751	0.016	4.414	95.165	540.8	.955
5. Easley's "Coal in Store".....	.689	14.984	76.264	.....	8.083	84.347	535.6	.946
6. New York and Maryland Mining Company.....	1.785	12.309	73.503	.....	12.403	85.906	524.8	.927
7. Quin's Run.....	.836	17.868	72.787	.102	8.406	81.193	517.0	.913
8. Blossburg.....	1.339	13.927	73.108	.853	10.773	83.881	515.9	.911
9. Neff's, Cumberland.....	2.455	12.675	74.527	.....	10.343	84.870	512.7	.906
10. Easley & Smith's.....	.893	15.522	74.289	.....	9.296	83.585	511.1	.903
11. Beaver Meadow. Slope, No. 3.....	1.562	2.384	88.942	0.011	7.112	96.052	505.5	.893
12. Beaver Meadow. (Navy Yard).....	.....	.....	.....	.....	8.104	.....	500.0	.883
13. Mixture, 1-5th Cumberland, 4-5ths Beaver Meadow.....	.....	.....	.....	.....	8.176	.....	498.5	.880
14. Lehigh.....	0.000	5.285	89.153	.....	5.582	94.715	494.0	.872
15. Lycoming Creek.....	.670	13.807	71.532	.030	13.991	85.493	493.3	.871
16. Cambria County.....	2.455	19.019	69.373	1.500	9.153	78.526	486.9	.860
17. Mixture, 1-5th Middletown, 4-5ths Beaver Meadow.....	.....	.....	.....	.....	8.885	.....	481.1	.850
18. Barr's Deep Run	1.785	19.782	67.958	.....	10.475	78.433	478.7	.845
19. Lackawanna.....	2.120	3.793	87.741	0.123	6.346	94.087	477.7	.844
20. Karthaus.....	1.282	17.948	73.770	1.580	7.000	80.770	477.4	.843
21. Dauphin and Susquehanna.....	.446	13.547	74.244	.269	11.494	85.738	472.8	.835
22. Lykens Valley.....	0.111	6.796	83.841	0.001	9.252	93.093	459.7	.812
23. Pictou, (New York).....	2.567	27.063	56.981	.769	13.389	70.370	450.6	.796

STEAM RAISING POWER OF COALS—CONTINUED.

NAMES OF COALS IN THE ORDER OF EVAPORATIVE POWER UNDER EQUAL BULKS.	COMPOSITION IN 100 PARTS.					EFFICIENCY.	
	Water.....	Volatile matter	Fixed carbon.....	Sulphur.....	Ash.....	Coke.....	Pounds of steam from 212° produced by 1 cu- bic foot of each coal..
24. Midlothian, (average)	2.455	29.796	53.012	.038	14.737	67.749	448.5
25. Crouch & Sheaf's.....	1.785	23.859	59.976	.427	14.280	74.256	445.0
26. New Castle	2.007	35.597	56.996	.230	5.400	62.396	439.6
27. Midlothian, (900 feet shaft)	1.172	27.278	61.083	.....	10.467	71.550	433.7
28. Midlothian, "New Shaft" .....	.670	33.490	56.400	2.286	9.440	65.840	418.6
29. Midlothian, (Cunard's) .....	.781	25.975	60.735	.....	12.508	73.243	417.9
30. Chesterfield Mining Company.....	1.896	30.676	58.794	1.937	8.634	67.428	410.9
31. Midlothian, (screened)	1.785	34.497	54.063	.202	63.718	408.7	9.000
32. Natural coke.....	1.116	11.977	75.081	0.466	11.826	86.907	395.3
33. Creek Company's.....	1.450	29.678	60.300	2.800	8.572	68.872	391.8
34. Pittsburgh.....	1.397	35.063	54.926	.160	7.074	62.000	384.1
35. Sidney	3.125	23.810	67.570	.....	5.495	73.065	378.9
36. Liverpool .....	.892	39.587	54.899	.376	4.622	59.521	375.4
37. Scotch.....	3.013	38.837	48.812	.358	9.338	58.150	353.8
38. Typecanoe.....	1.841	34.165	54.620	.377	9.374	63.994	350.2
39. Cammellon, (la.).....	2.597	33.992	58.437	.....	4.974	63.411	348.8
40. Clover Hill.....	1.339	31.698	56.881	.514	10.132	66.963	347.7
							7.92
							7.86
							7.76
							7.66
							7.59
							7.38
							7.26
							7.22
							6.98
							6.92
							6.78
							6.69
							6.63
							6.50
							6.25
							6.18
							6.16
							6.14

PETROLEUM.

The Titusville *Courier* furnishes the following description of the Pennsylvania oil fields, which produce the great bulk of petroleum in use throughout the world, together with condensed statistics of yearly production, stocks, shipments and exports; also important information relating to the processes of refining of oil. From the first discovery in 1859, by Col. Drake, near Titusville, of petroleum in strata of pebble deposit, commonly called "sand-rock" to the present time, the information which the public has had upon the extent of producing territory, has necessarily been limited and imperfect. The producing belts have been traced and bounded only by years of work in expensive development. This article gives a comprehensive idea of the geologic character of the oil producing districts:

The Pennsylvania oil sands lie in the Middle Devonian system and the Canada oil limestone in its lowest part. It would take 3,000 feet to reach the horizon of Canadian petroleum by borings on Oil Creek.

The systems which are comprised in a consideration of the subject of petroleum in the entire range from Tennessee to Canada, are as follows:

No. XII. Conglomerate sand-rock.

No. XI. { Sub-conglomerate or lowest coal measures.
 { Sub-carboniferous limestone.

No. X. Upper Devonian white sandstone.

No. IX. Upper Devonian red sandstone and shales.

No. VIII.	{	<p>Middle Devonian, (Chemung,) clay sandstones. Within this formation the three oil sands of Pennsylvania are found.</p> <p>Lower Devonian (Portage, Hamilton and Upper Helderberg, olive shales and black slates, as follows):</p> <p>Genessee slate.</p> <p>Tully limestone.</p> <p>Hamilton slate.</p> <p>Marcellus shale.</p> <p>Corniferous and Onondaga limestone. (Here the Canada oil is found.)</p> <p>Schoharie grit.</p> <p>Canda Galli grit.</p>
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In Kentucky we find the conglomerate sand-rock, No. XII, on the surface, and if we drill deep enough, the others in their order beneath it.

In southern Pennsylvania and Virginia we find the sub-carboniferous limestone, No. XI, near the surface, and the rest below, as before.

In Butler county, Pa., we find the Upper Devonian, No. IX, on the surface, and the rest below

In Warren county, Pa., we find the top of No. VIII, Middle Devonian, (Chemung,) upon the surface, and the rest below.

In Canada we find the Corniferous limestone, No. VIII, within five hundred feet of the surface.

It is essential to bear in mind that this general statement concerning the strata is subject to local variations, which are only determined by inspection. Not only does the thickness of each formation vary in different places, but members of the systems may run out and be lost, or else so merged with their neighbors as to require the greatest skill for their determination.

Starting, therefore, as broadly as possible, we know that the extreme northern boundary is the shore of Lake Erie; that the eastern boundary is formed by the Allegheny Mountains, because the geological formation there is entirely different; that the southern boundary lies a short distance below the terminus of the present development, for the same reason, and the western boundary, the outcrop of the rock, which will carry us a short distance into the State of Ohio.

Now let us see how much closer we can draw these lines.

We find in the first place that the oil sand-rock of our region crops out or comes to the surface some twenty miles south of the shore of Lake Erie, as defined by the irregular line upon the map. Rock City, in Allegheny county, New York, the North Rocks some seven miles above Warren, the quarries at Garland and Le Boeuff, in Pennsylvania, and the rocks at Panama, in Chautauqua county, New York, will all be found to exhibit fine exposures of the horizon of sand rock, in which the deposits of pebble rock are found.

THE RESULT OF EXPERIENCE.

Secondly, we bring to our aid the results of our actual experience, and draw two lines upon the map as follows: *The eastern dividing line between oil and gas wells; the western dividing line between oil and gas wells.*

In drawing these lines the greatest care has been exercised to include all territory that has ever produced at all. As generally known, I mention a few of the gas wells on these lines, and which will be found upon the map.

On the Western Line.

No. 1. Gas well at Lowell, Mahoning county, Ohio, 900 feet deep.

No. 17. Gas well at Middlesex, Mercer county, Ohio.

No. 37. Gas well on Winter Farm, Troy township, Crawford county, Pennsylvania, 1,670 feet deep.

No. 41. The Newton gas well on the A. H. Nelson farm, five miles north of Titusville, 786 feet deep, the total production of gas from this well has been estimated at four millions of cubic feet per day.

Gas well at Irvineton.

Gas wells in Catteraugus county, New York.

On the Eastern Line.

Gas well at Leechburg, above Pittsburg, on the Kiskimintas river, seven miles above its mouth, 1,200 feet deep, produces an enormous amount of gas which is used by the manufactories.

Gas wells on Crooked Creek, in Armstrong county :

No. 51. Gas well on Blyson's Run in Little Toby, Clarion county, Pa.

No. 38. Gas wells three miles north-east of East Sandy oil district in Venango county, Pa. Much gas, no oil, 42 feet of sand-rock.

No. 40. Gas well on Hiram Heath Farm, Hickory township, Forest county. Gas well on Stewart's Run, Venango county. Gas of 150 lbs. pressure at 250 feet in the second sand, third sand not found at 825 feet.

Now the question will naturally arise, how extensive and thorough have been the developments outside of these *eastern* and *western* lines of acknowledged oil territory ?

To those conversant with the country it is not necessary to dwell at length upon the comparative value or prospects of wells drilled west of these lines and in Ohio. To those abroad it may suffice to know that the country west of the western dividing line, as here drawn, has been tested with more than one thousand wells during the past fifteen years and with no better results than here indicated. This statement is made from the investigations of the writer during the survey, and at first sight may appear to be extravagant, but it needs only to be tested by an inquiry over the area in question, to show that it will fall far within actual bounds. Our memory of failures is short lived, and we are always glad to forget what was unsatisfactory.

East of the *eastern line* the development has not been so great, because the proximity of the mountain formation was discouraging, and the inevitable gas well was the result of all attempts to discover oil.

On the south, no line is defined upon the map, because the progress of development in that quarter has not been sufficient to justify such definition, but we know enough to assert with safety, that when it is established it will not be far from the termination of the present Butler Belt. Not only does the general formation change in character, but all tests in that locality for other purposes have discountenanced any supposition to the contrary.

The area thus defined, which embraces about 3,200 square miles, may be denominated therefore the *Probable Oil Territory*.

LIGHT AND HEAVY OIL.

Can we draw these lines any closer?

Between the eastern and western lines, between oil and gas wells, we find a line as shown between light and heavy oil—that is to say that no light oil has heretofore been found, with all our search, west of this line. This heavy oil strip comprises the territory at Smith's Ferry, Ohio, Slippery Rock, in Butler county, Mercer county and Sugar Creek. It corresponds precisely with what we know of the dip of the sand-rock, which is lower at the east and higher at the west, the heavy oil being invariably found in an oil sand-rock that is nearer the surface of the earth. We may possibly find some light oil under the heavy oil, but we never have yet.

This strip of heavy oil territory takes from our area over 1,200 square miles, leaving us less than 2,000 square miles of probable light oil territory.

(It is, perhaps, hardly necessary to recite here that heavy oil is of little value for illuminating purposes, and is never produced in great quantities, the oil of the world being the light oil of 47° is the main subject for consideration.)

Within this territory, as shown upon the map, we have defined the actual surface areas (colored in black) which have produced light oil in quantity up to the present time.

The fact that the total area of these producing spots of light oil territory, as found so far, does not aggregate over *thirty-five square miles* out of this 2,000, would be apt to engender in the minds of those unacquainted with the business, a vital misconception. While the different beds of sand-rocks sweep under the entire oil country, the pebble rock is a special deposit, found only at rare intervals *within* these sand-rocks, just as gold and similar deposits are found, and it has proved almost as valuable.

Taking the average depth of pebble rock at twenty-five feet, we have found, so far, four and a half millions of cubic feet of this material, which has produced over three hundred million dollars' worth of oil, making its value, at this rate over sixty-six dollars a cubic foot.

If it were possible to place upon a map the exact location of every well of the eighteen thousand that have been drilled up to the present time, the greater part of this two thousand square miles of light oil territory would be found to be pitted in all directions, and very uniformly. There can be no question that we have gone over this entire area, from north to south, with a very thorough search, beyond a few outlying points which might produce a considerable amount of oil. We are not aware that there is any further chance for great expectations within four-fifths of its area than may arise from the blunders or inefficiency of these previous attempts in heretofore unproductive localities, and the mobility of the oil from one bed of pebble

rock to another. The prodigal production of the country during the past few years would naturally create great caution in making statements of this kind; but as disinterested observers we can draw no other conclusions from the present situation than that the oil of the future will only be produced by diligent and careful search, and at a much greater cost than heretofore.

To return to our geology. It will be observed that the irregular line of the outcrop of the oil bearing sand-rock crosses the eastern and western line of the oil and gas wells a short distance above Warren, Pa. This makes a further reduction of our light oil area of about three hundred and fifty square miles, leaving us a probable area in which pebble rock may be found of only one thousand six hundred and fifty square miles.

M'KEAN COUNTY WELLS.

What about the wells in M'Kean county, which lie outside this outcrop? All oil wells may be divided into two classes—wells from the beds of pebble rock, and crevice wells. It is to the first class alone that we can look for any considerable production. When the vapor from the lower shales, in its progress towards the surface of the earth, meets a deposit of pebble rock, it finds a reservoir which will contain a vast amount of fluid.

To illustrate this point more fully, we quote the following, from one of Professor J. P. Lesley's reports on oil territory:

"Every foot of gravel-rock may be considered to consist of three-fourths quartz, &c., and one-fourth cavity, cleaned out by long percolation and now occupied by water and oil. The proportion which the oil bears to the water in the bed is unknown. * * * But supposing the oil to occupy but the uppermost four inches of the whole pebble-rock, we have under each square mile 551,706 barrels." That this is a moderate estimate, will be readily seen, when it is stated that the oil-rock of the region has produced nearly three times this amount, or 1,500,000 barrels per square mile. Crevice wells are readily distinguished. The oil is generally found at a certain level, independent of any strata, it has an oxidized tint from the possible accession of atmospheric air, and when this has occurred to any great extent, it has transformed a light oil into a heavy oil. So at West Virginia light and heavy oils are found indiscriminately side by side. An extreme case of this oxidation is shown in the solid bitumen vein of West Virginia which has been decided by the best authorities to be simply a gradual oxidation of coal oil, filling the open fissure.

There is nothing in existence at present to indicate that there is any oil bearing pebble of any amount under our oil sand, and as this sand crops out to the surface above Warren, the line of pebble rock territory can be safely drawn a few miles above Tidioute, which has the highest oil produc-

ing sand-rock in the region. The sand-rock here is only 100 feet below the river bed.

The wells in M'Kean county are crevice wells, in which oil will be found in almost any formation, and in which also will occur as well, the close sand-rocks underlying the oil sand-rocks of the region. But an examination will develop the fact that these sand-rocks do not appear to bear any relation to the production of oil, or much less are they an essential requisite as with us.

Crevice wells may produce considerable quantities of oil at the start, but nothing in comparison to the vast reservoirs in the pebble-rock. We quote again from Professor Lesley :

"Suppose the fissures to be of all sizes, from four inches to a quarter of an inch in width and at various distances asunder, from five to fifty feet, and to be limited to the sand-rock, say thirty feet in height, then we will have the contents of the fissures equal to, say $\frac{1}{500}$ the mass of the rock, supposing the oil to occupy but $\frac{1}{10}$ of the space in each fissure, the rest being occupied by water and gas, we have a yield of oil from each square mile of about 50,000 barrels;" exceptional wells from fissures of unusual size might exceed this amount, but as seen above, the results of active development have given over 1,500,000 barrels per square mile for pebble rock territory.

The wells in M'Kean county are found in a synclinal or break similar in result to the anticlinal or upheaval of West Virginia, their production must be estimated accordingly, and it could probably be increased for the time, by following the example of their Virginian predecessors and torpedoing every hole; the direction and actual extent of the synclinal could undoubtedly be defined upon the ground by investigation.

PEBBLE ROCK OIL TERRITORY.

We come now to a close scrutiny of this 1,650 square miles of pebble-rock territory within which alone we can ever expect to obtain large amounts of oil. I say a close scrutiny because any old operator in glancing over the territory within these limits that seems to be undeveloped will reject utterly a great deal of its area that has cost him much time and money without the slightest profitable result.

There seems to be but three directions in which to look for a continuance of the oil development.

1st. In the fact that the actual oil areas are comparatively so small that some may have not been touched with the drill despite our very thorough search in the upper oil region.

2d. In the mobility of the oil from one sand-rock to another, the pressure of the supply from below is very great; when a sand-rock has been

“watered logged” by development, the oil may escape to some adjacent pebble rock that was previously dry.

3d. In the discovery of additional belts in Butler county, or still further to the south. Concerning the first, wells of a moderate size, will undoubtedly be found in a number of rich oil areas which exist in the upper region and which alone will preserve the world from total darkness for several years to come. For instance, the Colorado belt is at some places but twenty rods wide and at no place over sixty rods. It does not require a prophet to say that there should be more oil in that vicinity, although the production has not been extravagant.

That the Octave district of Titusville possesses similar capabilities will hardly be questioned.

That the Church Run district should find some connection in Warren county is more than probable. Concerning the second, we believe that more of our recent developments are due to this cause than many are aware. If a careful examination is made of recent territory, especially in the upper region, it will be found to be upon the edge of what has previously proved productive. Just how far this may eventually result is yet a matter of conjecture. Concerning the third direction it would be presumption to state anything at present except as a matter of fair and legitimate judgment and estimate. It is possible that the present oil area may be slightly widened in the future for the reason just previously alleged. The fact that the lower strata of rocks are in a measure connected by fissures, and that such an enormous quantity of oil has been taken out of the Butler and Clarion belt would, of itself, induce a disinclination to suppose that any fresh pebble rock of great value could be found, lying, as it does, centrally between the heavy oil on the west and the gas wells on the east.

Brady's Bend, on the Allegheny river, lies in the axis of the synclinal that forms the sixth great coal basin, but it should be remembered that the rise of the strata southward terminates about ten miles further down the river, where the sixth, or Kittanning, basin begins its south-east dip.

For this reason our oil sand-rocks cannot be supposed to exist in this vicinity within any reasonable distance from the surface of the earth, when we consider that the Tionesta coals, which lie upon the tops of the highest hills in Elk and M'Kean counties, are plunged 500 feet below the Ohio river at Pittsburg.

The only source for production in south-western Pennsylvania is from fissures, or from reservoirs of oil which may occur in our mountain sands, being found there considerably beneath the surface.

The oil at Tarentum, for instance, on the Allegheny, is from the same horizon with that of Freeport, Beaver river and Slippery Rock, and these

sand-rocks crop out on the hillsides of Oil creek, and have nothing to do with our production.

And here again we bring to our aid our actual experience, and it is in every instance opposed to the supposition of any great production.

It would be natural to infer that at these places our own oil could be reached below this horizon, and yet the result of drilling beyond this point has given, so far, a uniform result of close, hard sand-rock, thin and nothing more than gas or soot. When this southern line is finally drawn, we believe it will be found to be very near to where the maximum depth at which we find oil at present—say one thousand two hundred feet—crosses the dip of the third sand.

Let us, however, look at this matter broadly: Suppose we *should* find another great belt in Butler county, or to the southward of it, which is very improbable, the present thirty miles of development has lasted us just three years. At the outside estimate we can have but three years more of any such abundance, and we have but little upon which to base any supposition that we shall have it all. I deem it safe, therefore, to assume that our future work lies in the gleaning of the field which we have reaped, and not in fresh and untried localities.

Furthermore, we see no reason to oppose the probability that the annual supply of oil from this time forward will gradually decrease, as far as the Pennsylvania region is concerned; not that this decrease will be regular, but that a few years from the present time will indicate a vast change in the value of crude oil, unless found elsewhere in sufficient quantity and of merchantable value as an illuminator.

There are many isolated facts and local details which the writer could furnish relative to the geology of the entire region; but although interesting in themselves, they would be out of place at this time, like the various courses in a building, no stone is needed until all below it have been put into place.

More than this, the consideration of these minor facts has heretofore led only to the utter confusion of the subject, because upon each of the different discoveries in the various localities, a supposition was built which was presumed to cover all. There are facts enough in existence, which if put together consecutively would give very substantial results.

We may divide the information concerning the region into three parts. 1. The theories of the Scientist. 2. The angles and distances of the Engineer. 3. The data of the Producer.

Each of these men have followed their special channel for years, and all sadly in want of each other; the business of producing has been divided among so many that there have been few or none whose operations were of sufficient magnitude to warrant in their own estimation the expense of any

thorough and accurate work, and yet the merest fraction of the cost of oil blunders, would have been ample to accomplish it.

While different people will naturally draw different conclusions from the premises which have been stated here, it seems to me that it is not enough to disabuse the popular mind of the fallacy that our oil region is inexhaustable; we should go farther than that; we have arrived at a point when it behooves us to take the best possible care of *all we have left*, and to secure for it the largest possible return; such return will be highly commensurate with the system and care with which the business is conducted.

A great deal might be said upon this point, but if the statements above are correct, the thought, when fairly established in the public mind, will hem its own way.

There are several very pretty little questions that, if definitely answered, would aid greatly in the advancement of the subject; for instance, what proportion of pebble-rock is found relatively in the upper and lower sands? does this proportion decrease as we go deeper? I believe it does decrease rapidly, but is it a fact? If our development could tell us the areas of the pebble-rock in the first and second sands, as it does when completed in the third, it would not be difficult to ascertain and if any one were found earnest enough to take the time and pains, the question could be answered in other ways.

For want of this thoroughness, all the information we have accumulated so far, beyond the simple outlines we have given, can hardly come under the denomination of fact, as it amounts practically to nothing more than a series of "strong suspicions." Its practical effect is shown nowhere more clearly than in the manner of operating in M'Kean county by putting down test wells blindly in different directions. Where a synclinal or anticlinal occurs, it has generally the peculiar advantage of being defined upon the surface of the ground—and in this case it is marked very plainly, something—which as we all know pebble rock territory lacks entirely; in West Virginia the territory was defined several years ago in this way.

Now a fraction of the cost of failures in thus obtaining the facts would have defined this territory and measured its resources.

In a long residence in the oil region the writer has become thoroughly imbued with the feeling common to us all of preferring above all things in any computation, the result of what has actually been done and what has really been found by work, whether successful or otherwise, and finally begs to repeat that nothing could induce him to step thus publicly out of the line of his profession but a sincere devotion to our common interest, and the hope that time will prove his effort to have been "a word spoken in due season."

Following the geologic exhibit by Mr. Wrigley, of the great oil basin of western Pennsylvania, we present important statistics for the interest of all engaged in petroleum industry. They have been collated with a great deal of care, and we believe they will bear close examination. For the ready comprehension of all we reduce all figures of oil to barrels, of forty-two gallons each, which is the standard in the oil region, except the refined oil given in store in London and the German ports and that afloat.

EXPORTS.

The exports of petroleum show upon the whole a steadily increasing demand for the article in foreign countries. Below we give total exports, beginning with 1870, for five consecutive years, also for 1875, up to October 4th. It will be observed that the exports for 1871 exceed those of 1872, and those of 1873 exceed those of 1874, while those of 1874 largely exceed the exports of 1871. The exports this year up to October 4th are over three hundred thousand barrels less than those of same time last year. The exports of 1871 were doubtless larger than the wants of trade for consumption in foreign countries, causing the falling off in exports in 1872. The high price at that time permitted other oils for illuminating purposes to compete with our product. But during the past two years the market price of American petroleum has ruled so low, the decrease in exports since 1873 must be traced to another cause than competition from foreign products. In fact it is probable that the low price of our article led, in 1873 and the earlier part of 1874, to over stocking foreign markets. The result was a rapid decline in the trade during the latter part of last year, and a delay in opening the large export business this year. Excessive production in 1874 also tended to render foreign dealers extremely cautious in their purchases. The effect has been to carry less stock abroad, and to increase the store of it in the oil region. Statistics show a large increase of the consumption of American petroleum in foreign countries this year. The heavy decline in production since last year is coming to be known, and this necessarily stimulates trade. During the last month the shipments of oil from the region were largely in excess of those of any previous period of the same time. The following figures will be interesting to study :

Total exports of refined and crude petroleum from the United States in crude equivalent :

1870.....	4,501,983 bbls.	Daily average.....	12,334 bbls.
1871.....	4,919,248 "	" " " "	13,477 "
1872.....	4,595,360 "	" " " "	12,555 "
1873.....	7,655,522 "	" " " "	20,713 "
1874.....	7,315,406 "	" " " "	20,042 "

Total exports of petroleum in its crude state, and of naphtha :

1870.....	329,218	crude bbls.	Naphtha.....	7,668,924	galls.
1871.....	302,888	“ “	“	8,565,929	“
1872.....	345,321	“ “	“	9,059,624	“
1873.....	340,121	“ “	“	9,452,631	“
1874.....	334,035	“ “	“	9,565,566	“

Total exports of petroleum from January 1 to October 4, 1875 :

Refined and crude in crude equivalent.....	5,623,773	bbls.
Same time last year	6,007,450	“
Crude	297,582	“
Same time last year	322,910	“
Naphtha	10,230,851	galls.
Same time last year.....	7,629,158	“

From New York the exports of crude oil from January 1 to October 4, 1875, were 116,746 barrels, against 290,336 barrels same time last year. Exports of refined up to October 4 this year, were 2,840,205 barrels, in crude, equivalent, against 3,035,372 barrels same time this year.

From Philadelphia, the exports of crude oil this year, up to October 4, were 128,978 barrels, against 40,185 barrels same time last year. Of refined in crude equivalent, 1,461,499 barrels, against 2,141,502 barrels same time last year.

From Baltimore, the exports of crude this year, up to October 4, were 6,672 barrels against 1,803 barrels last year. The exports of refined from this port in crude equivalent, were 743,321 barrels, against 121,532 barrels same time last year.

PRESENT CONDITION OF FOREIGN TRADE.

As remarked above, foreign markets in 1873 and in the earlier part of 1874, were doubtless over-stocked, and this has led foreign purchasers to carry less stock than they had previously done. We call attention to the following figures, taken from the London *Grocer* of September 25, which show a comparative statement of the landings and deliveries of petroleum oil, &c., in London, during the first thirty-eight weeks of 1875 and two preceding years, together with the stocks on September 20, viz :

	LANDINGS.			DELIVERIES.		
	1875.	1874.	1873.	1875.	1874.	1873.
Petroleum oil, barrels.....	72,545	217,021	113,520	147,808	114,870	76,462
Petroleum oil, cases.....	300	4,973	6,639	29	5,920	8,682
Crude, barrels	1,947	23,625	5,546	8,585	10,796	4,872
Benzine, barrels.....	30,524	30,553	35,553	38,194	34,774	29,006
Benzine, cases.....		290		49	51	
Coal oil barrels	2,775	2,671	10,890	2,481	2,826	13,559

	STOCKS.		
	1875.	1874.	1873.
Petroleum oil, barrels	41,632	155,024	58,424
Petroleum oil, cases.....	294	1,680	51
Crude oil, barrels.....	7,140	17,394	3,683
Benzine, barrels	3,166	1,647	9,958
Benzine, cases	1	75	.....
Coal oil, barrels	537	178	269

As will be seen the landings of petroleum in London for the first thirty-eight weeks in 1875, are but a little over one-third of those during the same time in 1874, while the deliveries for consumption are much larger than those of 1874, and nearly twice as large as those of 1873, for the same time. The stocks too on hand September 20, 1875, are less than one-third of those last year same date. The small amount of coal oil now in the trade will also attract attention.

On September 13th last, the amount of refined oil afloat for five principal German ports were as follows :

QUANTITY OF REFINED AFLOAT SEPTEMBER 13.

	1875.	1874.
For Bremen, barrels.....	62,643	66,656
“ Antwerp.....	79,300	37,022
“ Hamburg.....	32,715	15,306
“ Rotterdam.....	20,767	18,370
“ Stettin.....	65,875	28,106
Total, barrels.....	261,300	156,460

	1875.	1874.
Quantity in store, barrels	698,296	892,022
“ afloat	261,300	165,460
“ loading.....	154,500	154,500
Total, barrels.....	1,114,096	1,211,982

QUANTITIES OF REFINED TAKEN FOR CONSUMPTION JANUARY 1 TO SEPTEMBER 18.

	1875.	1874.
From Bremen, barrels	537,521	461,110
“ Antwerp.....	409,785	315,991
“ Hamburg.....	104,962	165,286
“ Rotterdam	123,609	116,154
“ Stettin.....	100,646	80,170
Total, barrels.....	1,276,523	1,038,711

At these points the refined in store stood severally as follows :

	1875.	1874.
At Bremen, barrels.....	373,011	400,163
At Antwerp.....	193,805	269,198
At Hamburg.....	36,693	89,053
At Rotterdam.....	12,786	46,877
At Stettin.....	82,001	86,758
Total, barrels.....	698,296	892,022

The exports for these five ports during 1874, amounted in crude equivalent as follows :

	Barrels.
Bremen.....	1,324,611
Antwerp.....	1,043,360
Hamburg.....	391,481
Rotterdam.....	395,855
Stettin.....	288,713
Total.....	3,444,020

Nearly half of the entire exports in 1875 went to these five German ports, and nearly all this was refined oil in barrels.

The exports for London in 1874 amounted to 331,682 barrels, crude equivalent, and for Liverpool to 219,522 barrels. Havre, Danzig, Cronstadt and Trieste receive considerable quantities of oil.

HOME TRADE.

The increase in consumption of petroleum in the United States this year is very large. In all the cities, but especially those of the smaller size, there is steadily going on the substitution of refined oil for gas. The reports of the national gas association show a large diminution in the use of coal gas in this country, and the fact is accounted for, on the use of oil in its stead. The manufacture of gas also from petroleum, in this country, is steadily increasing. We believe the time is not far ahead, when all commercial illuminating gas will be made from petroleum. Several different processes for its manufacture have met with various degrees of success. It can hardly be doubted that experiment will overcome all practical difficulties in the way. Refined oil is coming to be used, both in America and Europe, as fuel in the summer season for family use, in small stoves constructed for the purpose. Even in Europe, at the present low prices, it is a cheap and very convenient article of fuel. During the past year there has been a growing demand for a higher fire test of refined oil than 116° Fahrenheit. The Octave Oil Company of this city are at present crowded with orders for 120° and 50° test oil for local trade. Refined of the higher

tests are not only safe for ordinary use, but generally of a superior quality. Refined oil is now transported to all parts of the Union in car tanks, and companies organized with heavy capital and large tank lines, now carry on this particular business.

PRODUCTION.

From present indications the average daily production in 1875 will fall below that of 1874 by at least 9,000 barrels. The production of last year turned out to be much heavier than any one at the time was aware of. It was not less than 33,000 barrels a day, and the prospects now are that the daily average this year will not exceed 24,000 barrels. No new producing territory, in either Butler or Clarion county, has been developed this year, while several important test wells just beyond the borders of the belts have been sunk without producing oil. Several large wells upon the fourth sand belt in Butler county this season have been found, but they generally soon run down in production. Torpedoes are extensively used for resuscitating old wells, but they hasten the exhaustion of territory.

We have prepared a detailed report by farms of the Butler and Clarion districts for September, but our limits will not permit its insertion. The summary shows for the third sand belt in Butler a daily production of 6,810 barrels, for the cross or fourth sand belt 8,040 barrels, and for Clarion district 4,248 barrels. The production of the entire upper districts we put upon close estimate at 3,500 barrels. The production in M'Kean county, from six wells in all, is from 250 to 300 barrels per day. The production of the Octave district, near Titusville, is 600 barrels. The average daily production for September, is 22,598 barrels.

From Mr. Wrigley's geological report which we publish this morning, it is clear that the great oil producing basin of Western Pennsylvania has been surrounded, and its limits closely marked. Within these limits it is next to a certainty that not another large producing district such as Butler county exists.

The production hereafter will doubtless develop many small belts or "pockets," from which a considerable supply of oil will be taken. But until some other grand basin, like the one we are now engaged in draining, shall be discovered, we need not look for another Butler. Whether the quantity of the product shall be "kept equal to the wants of trade" remains to be seen.

STOCKS.

The rapid accumulation of crude oil in iron tanks which took place in the early part of this year, has met a heavy check during the past few months, from the heavy shipments of oil out of the country. On the first day of the present month, the total stock of merchantable oil in the region amount-

ed in round numbers to 3,550,000 barrels. There is now a large amount of empty tankage in the region.

SHIPMENTS FROM THE OIL REGION IN SEPT., 1875, IN CRUDE OR ITS EQUIVALENT.

By Allegheny Valley, Western Pennsylvania, Philadelphia and Erie, and Oil Creek railways.....	497,384	bbls.
By Columbia Conduit Pipe to Pittsburg.....	75,861	"
By Atlantic and Great Western railway.....	98,120	"
By Lake Shore and Michigan Southern, and Shenango railways.....	328,853	"
By Dunkirk, Allegheny Valley and Pittsburg railway....	98,740	"
Total.....	<u>1,098,958</u>	"
Shipments in August, 1875.....	932,123	bbls.
Do.....July, 1875.....	910,236	"
Do.....June, 1875.....	739,750	"
Do.....May, 1875.....	695,829	"
Do.....April, 1875.....	752,630	"
Do.....March, 1875.....	701,325	"
Do.....February, 1875.....	340,237	"
Do.....January, 1875.....	<u>460,220</u>	"

PRICES.

The following table shows the extreme prices of crude oil at Titusville, for each month, from 1870, down to the present time :

OIL SALES.

Prices of Crude Oil per barrel at Titusville, each month, in the following years:

	1870.	1871.	1872.	1873.	1874.	1875.
January.....	\$4 15 @ \$4 90	\$3 40 @ \$3 25	\$4 00 @ \$1 05	\$2 00 @ \$2 43	\$1 17 ¹ / ₂ @ \$1 75	\$1 01 ¹ / ₂ @ \$1 45
February.....	4 35 @ 4 70	3 96 @ 4 80	3 60 @ 4 00	2 20 @ 2 25	1 07 ¹ / ₂ @ 2 35	1 40 @ 1 95
March.....	4 20 @ 4 70	4 00 @ 4 50	3 60 @ 3 85	2 17 @ 2 20	1 75 @ 2 05	1 76 ¹ / ₂ @ 1 90
April.....	4 10 @ 4 35	3 90 @ 4 12	3 45 @ 3 60	2 20 @ 2 75	1 95 @ 2 10	1 43 ³ / ₄ @ 1 78 ³ / ₄
May.....	4 10 @ 4 70	4 10 @ 5 10	3 60 @ 4 00	2 50 @ 2 75	1 82 ¹ / ₂ @ 2 05	1 30 @ 1 55
June.....	4 00 @ 4 35	4 56 @ 5 15	3 80 @ 4 10	2 05 @ 2 50	1 82 ¹ / ₂ @ 2 05	1 21 ¹ / ₂ @ 1 48 ¹ / ₂
July.....	3 35 @ 4 20	4 58 @ 5 00	3 50 @ 4 10	1 10 @ 1 80	1 12 ¹ / ₂ @ 1 37 ¹ / ₂	1 02 ¹ / ₂ @ 1 28 ¹ / ₂
August.....	2 75 @ 3 55	4 57 @ 4 75	3 17 @ 4 00	1 17 ¹ / ₂ @ 1 40	1 05 @ 1 17	1 08 ¹ / ₂ @ 1 16 ¹ / ₂
September.....	3 10 @ 3 40	4 48 @ 4 82	3 00 @ 3 50	1 17 ¹ / ₂ @ 1 50	1 02 @ 1 07	1 13 ¹ / ₂ @ 1 82 ¹ / ₂
October.....	3 10 @ 3 45	4 80 @ 4 85	3 15 @ 3 15	1 15 @ 1 45	82 ¹ / ₂ @ 1 07	To October 15.
November.....	3 10 @ 3 35	3 90 @ 4 60	3 67 @ 4 60	92 ¹ / ₂ @ 1 37 ¹ / ₂	73 @ 82 ¹ / ₂	1 41 ³ / ₄ @ 1 72 ³ / ₄
December.....	3 30 @ 3 50	4 00 @ 4 00	3 00 @ 3 65	92 ¹ / ₂ @ 1 17 ¹ / ₂	80 @ 1 02	.....
Average.....	3 74 ³ / ₄ barrel.	4 50 ³ / ₄ barrel.	3 84 ³ / ₄ barrel.	1 84 ³ / ₄ barrel.	1 29 ³ / ₄ barrel.	.....

To recapitulate some of the above figures, we give as summary:

Average daily production for September, 1875.....	22,598 barrels.
Total September shipments.....	1,008,958 "
Total stock, October 1.....	3,550,000 "

LATER OBSERVATIONS.

Since the preparation of the foregoing article we have collected later statistics. The average daily production during October increased 250 barrels over that of September last, but during November there has undoubtedly been a considerable decline. The shipments during October were 852,260 barrels. The stock of oil also declined, leaving on hand in the oil region, November 1, 1875, 3,395,500 barrels.

The total exports of petroleum for the year 1875, up to November 22, amount, in crude, equivalent to 6,547,530 barrels, against 6,734,883 barrels for the same period of 1874. But from October 4 to November 22, 1875, there has been an increase of near 200,000 barrels of exports above those of the same period of the previous year, and from present indications the total exports of 1875 will exceed those of 1874.

Home consumption, as shown by this fall's trade, is largely increasing. Refined petroleum is fast finding its way into the large cities.

IMPROVEMENTS IN REFINING OIL.

The latest improvements in the distillation of petroleum, are those recently made by Thomson M'Gowan and Samuel Van Syckel, of Titusville, Pa. The construction of the apparatus employed by these gentlemen, shows a clearer comprehension of the peculiar composition of petroleum, than has been exhibited heretofore by those engaged in this branch of industry. The analysis of the chemist and the experience of those engaged in distilling it, demonstrate conclusively that petroleum is a compound of hydro-carbons of varying gravities, varying in regular proportions, and that each has a separate and also varying vaporizing temperature. The first one in order, by reason of its abundance of hydrogen in proportion to its carbon, requires a much lower temperature to vaporize than the last and the intermediate ones vaporize at temperatures dependent upon the relative quantities of hydrogen and carbon found in them respectively. In other words, if the first hydro-carbon thrown off in the distillation, which for illustration may be designated H-4 C-5 would vaporize at a temperature of 150° Fahrenheit, the second one H-6 C-8 would only vaporize at a higher temperature, say 180° Fahrenheit, and so on in a regular ascending rate, for it is found that as the quantity of carbon in proportion to that of hydrogen increases, so also the vaporizing point is higher and higher. This of course, would be the natural result, for the greater the quantity of carbon there is to absorb the heat of the inflammable hydrogen, the more difficult it would be, either to vaporize or ignite the compound.

Remembering, also, that petroleum is not a succession of hydro-carbons of a single series, but is, in fact, what may be termed a compound of two

series of hydro-carbon, the vaporizing point for each becomes still more difficult to establish. The series already alluded to contains in each hydro-carbon two more parts of carbon than of hydrogen. In this other series is found equal parts of carbon and hydrogen. This being the case when the refiner of petroleum filled his large iron vessels and began his distillations, the first product that vaporized was a mixture of the lightest in gravity of these two series, say $H_4 C_6$, and $H_4 C_4$, and at a comparatively low temperature. As the heat from the fires under the stills increased, other and heavier gravities began to vaporize and pass off through the condensing worms, and the liquid product that poured from the ends of these worms was soon found to be a mixture of a number of these varying hydro-carbons, which mixture had a specific gravity, not of any single one, but the average of all. It was not found possible to so graduate the heat as to vaporize completely the lightest of these series, and then, by an increase of temperature, the next in order of gravity, and so on until the distillation was completed. The simple, yet rude, forms in which the stills were constructed prevented this, and in addition necessarily compelled a destructive distillation.

There are two kinds of stills in general use, one cylindrical in shape, the other like a common cheese box, each resting on masonry over a fire chamber, the cylinder on its side, the cheese-box, as it is commonly called, on its bottom. Each has thus the flat surface exposed to the direct action of the fire beneath it, and must retain on this surface all the impurities precipitated in the course of distillation. An analysis of petroleum shows a number of substances other than hydrogen and carbon, none entering into its composition largely but in sufficient quantities, when precipitated, to retard the distillation and require extra and higher heat to reach the oil above. This higher heat acting upon this deposit soon changes it from its soft granular form into a hard scale, which like the scale in an ordinary steam boiler is a partial non-conductor of heat. This requires again additional heat until the bottom of the still becomes at last a cherry red color, and the work of destruction begins. Under the very high temperature thus rendered necessary a partial chemical change is found to occur, and in addition to the sediment already precipitated carbon begins to be set free and falls, whilst the equivalent, hydrogen, let loose, finds its exit through the condensing worms and escapes in the air. This carbon in turn adds to the scale upon the bottom compelling again a higher temperature and thus successively to the end of the distillation. Of course such a method as this, under the sharp competition resulting from the large number of petroleum refineries in the United States, has been improved upon, and the latest of these improvements are the ones referred to.

These consist in an adaptation of the shape of the still used to the character of the liquid. The lighter hydro-carbons are first removed by the aid of steam so applied to a stream of petroleum passing through a still, as to vaporize only those hydro-carbons not containing sufficient carbon to insure a safe illuminating oil of at least 110° fire test. A description of this still would require too much space to be entered upon in this article. The inventors have it in daily use and desire to exhibit it. After the lighter runs of hydro-carbons have been removed, the oil is again passed into another still in a continuous stream. The body of this still is also shaped like a cheese-box, but the bottom instead of being flat, is in the form of an inverted truncated cone, which extends down through the fire chamber and into a cellar beneath. This cone is protected from the direct action of the fire in its lower part by the floor of the fire chamber, and by a wall of fire brick built up from this floor about four feet. This shape of the bottom permits the sediment precipitated to pass down away from the fire and prevents the formation of scale on the iron.

The draft is through one hundred three inch flues opening into the fire chamber, bending through the interior of the still and again opening into a circular chamber in the outer wall that supports the still. This circular chamber opens again by a perpendicular flue into a horizontal flue, that in turn opens into a large chimney. The bottom terminates in a cylinder two feet in diameter and three feet long. On this is placed a manhole, the plate of which opens inward. This cylinder is connected by a two inch pipe with an iron tank, into which the oil is drawn from the still as rapidly as it is reduced to a gravity of twenty-six. The flow is regulated by means of an iron stop-cock, and the pipe passes through a long condensing tube which cools the heavy oil sufficiently to permit its discharge into the tank without danger of ignition from contact with the air. This heavy oil is an excellent lubricator for certain kinds of machinery and finds a ready market as such.

By the use of a bottom thus shaped, it has been found possible to maintain a uniform temperature sufficiently high, to vaporize all the hydro-carbons that are fit to be used as illuminators and avoid almost entirely a destructive distillation.

In the body of the still is coiled about three hundred feet of pipe, five and five-eighth inches in diameter. This pipe is perforated on the upper side of each coil with inch holes three inches apart. It is connected through a flange on the side with an elevated tank from which the oil is fed by gravity as rapidly as the wants of the still require. The pipe leading from this elevated tank to and into the still is three inches in diameter. On it and inside the still an iron stop-cock is placed, which is opened and closed by means of an iron bar connected with an iron box floating in the

oil. The flow of oil into the still is thus regulated. The three-inch pipe and the coil are connected by means of a bushing. The use of the coil is necessitated, so say the inventors, in order to make a perfect and complete distillation. The temperature necessary to vaporize the heavier hydro-carbons is much higher than is required for the lighter ones. If the oil is poured into the body of the still and around the net work of flues bending through it, the vaporation of the lighter hydro-carbons would be instantaneous, and they would pass out so rapidly as to carry with them, mechanically, some of the unvaporized heavier oil, thus making an incomplete distillation, and rendering the distilled product in a manner unfit for its destined use.

The temperature of the still at the top is much lower than around the flues, but is sufficient to vaporize the lighter hydro-carbons in a comparatively slow manner, allowing them to pass off quietly through the perforations in the coil at the top, whilst the heavier flow on in the pipe, until each in its descent through the coil, coming constantly into a higher and higher temperature, in turn encounters a heat great enough to vaporize it, and in the end a heavy oil is poured out into the body of the still that needs the very high heat around the flues to complete the work.

Once each week this still is cooled off, the oil in it drawn out and the sediment removed. The oil drawn out is then returned and another week's distillation commenced. The inventors claim a much larger, more valuable and less expensively obtained percentage of products than by any known process of distillation. This process requires less fuel than the old, because there is less heat wasted. The treatment of the distillate requires less chemicals, because of its purer quality than that produced by the old process.

PRODUCTION OF THE PENNSYLVANIA OIL WELLS.

The following from the special report on the petroleum of Pennsylvania, by Henry E. Wrigley, Esq., shows the statistics of production, cost and proceeds of the product from 1859, the time of the discovery, until January 1, 1875. It also gives the net earnings of the entire region, and is accompanied with a diagram showing the life of wells in the Pennsylvania oil region :

During the fifteen years which have passed since the striking of the Drake well, the Pennsylvania oil region has produced up to January 1, 1875, sixty-seven millions seven hundred thousand barrels of oil, which brought at the wells the sum of two hundred and thirty-five millions five hundred thousand dollars. Of this amount three millions two hundred thousand barrels are stored to-day in the tanks of the oil region.

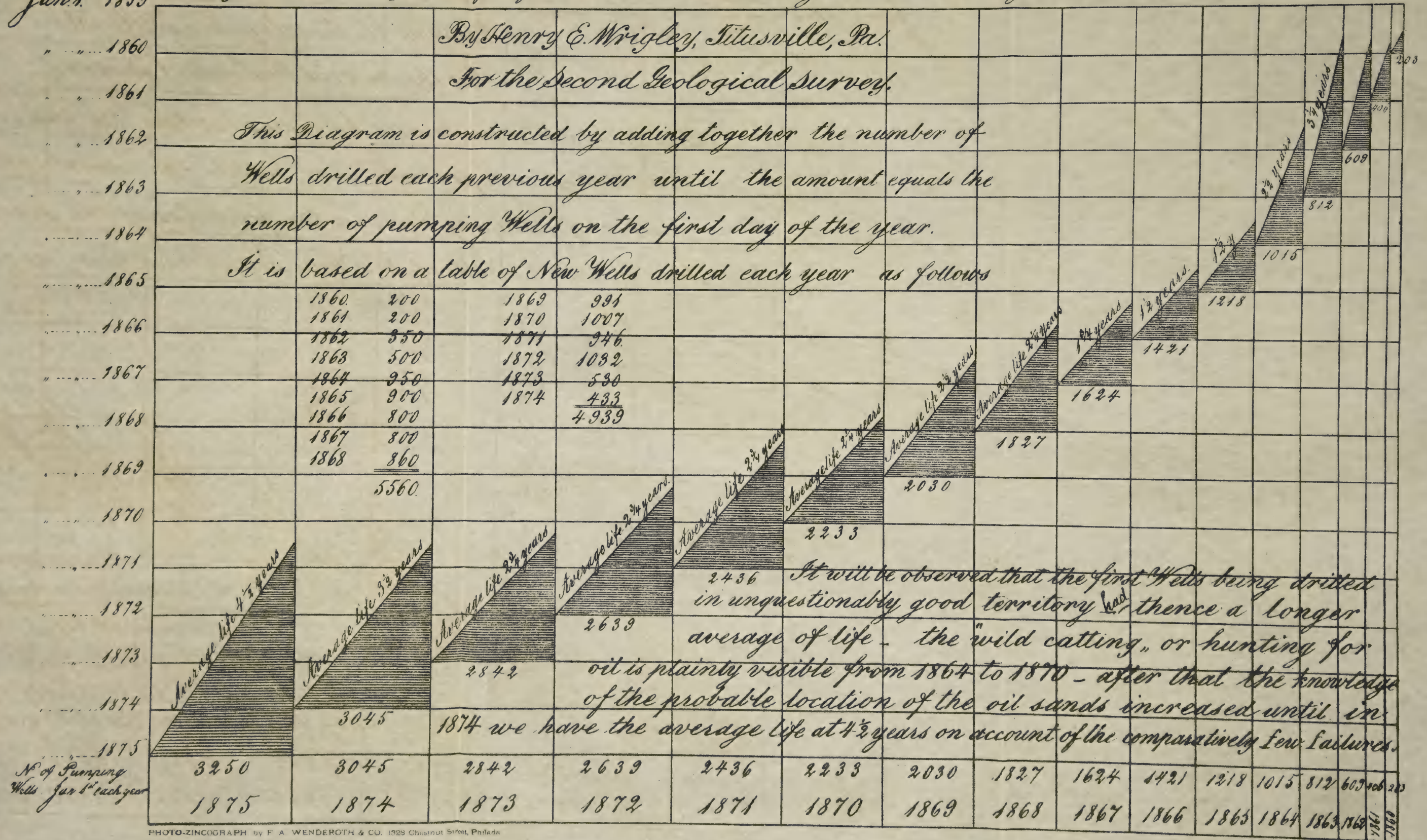
the following table, Pennsylvania 1880

By act of the Legislature, July 1st, 1880
 the following table, compiled from the
 records of the various counties, showing the number of
 persons who died in the various counties the
 various years, from 1870 to 1879, and the
 total number who died in each year as follows:

1870	1871
1872	1873
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Jan. 1. 1859 *Diagram showing the life of Wells in the Pennsylvania Oil Region from 1859 to 1875.*



The following table of production, price and export, will show more fully the progress of the business from year to year :

YEAR.	Production in barrels.	Average price for the year.	Amount.	Barrels exported crude, equivalent.	Crude, value of export at the wells.
1859....	3,200	31 cts. 3 gal.	\$41,664 00		
1860....	650,000	16 " "	4,368,000 00		
1861....	2,113,600	\$2 73 2 bbl.	5,770,128 00	27,812	\$75,926 76
1862....	3,056,606	1 08 "	5,135,098 08	272,192	457,282 56
1863....	2,611,359	3 99 "	10,419,322 41	706,268	2,818,009 32
1864....	2,116,182	9 63 "	20,442,318 12	796,824	7,697,319 84
1865....	3,497,712	6 57 "	22,979,967 84	745,138	4,895,556 66
1866....	3,597,527	3 73 "	13,418,775 71	1,685,761	6,287,888 52
1867....	3,347,306	3 18 "	10,644,433 08	1,676,309	5,330,634 00
1868....	3,715,741	4 15 "	15,420,325 15	2,429,498	10,082,416 70
1869....	4,215,000	5 85 "	24,657,750 00	2,568,713	15,026,971 05
1870....	5,659,000	3 80 "	21,504,200 00	3,530,068	13,414,258 70
1871....	5,795,000	4 35 "	25,208,250 00	3,890,326	16,922,918 10
1872....	6,539,103	3 75 "	24,521,636 25	4,276,660	16,037,475 00
1873....	9,879,455	1 84 "	18,178,197 20	4,981,441	9,165,851 44
1874....	10,910,393	1 17 "	12,765,054 51	4,903,970	5,737,644 98
	67,707,094	3 48 2 bbl.	235,475,120 35	32,490,971	113,950,153 26

Total production, 67,707,094 barrels; average price, \$3 48; total value of yield at wells, \$235,475,120 35; total amount exported, 32,490,971 barrels; total value at wells of crude oil exported, \$113,950,153 26.

The refining of this oil at a cost of two dollars per barrel, on seventy-five per cent. of the total amount, makes an additional value of over one hundred millions.

There has been exported a crude equivalent of thirty-two and a half millions of barrels, the value of which, at the wells, without refining, freight or handling, was one hundred and fourteen millions of dollars.

The freight on forty millions of barrels to the seaboard, at an average of \$2 50 per barrel, would amount to one hundred millions; so that the value received from abroad for the export, would exceed, at a minimum estimate, the sum of two hundred and sixty millions of dollars.

The total number of wells drilled in the region from the start to January 1, 1869, on or near actual producing territory, was 5,560. The amount of oil produced up to January 1, 1869, was something less than 25,700,000 barrels, giving the entire average production of each well at nearly 4,600 barrels. The amount realized for oil up to January 1, 1869, gave an average of \$4 06 per barrel, or \$18,700 for each well.

From that time forward until the present, the outline of the underlying strata being better understood and defined, and the failures proportionately less, the figures are as follows :

In 1869, there were drilled	991 wells.
In 1870....do.....do.....	1,007 "
In 1871....do.....do.....	946 "

In 1872 there were drilled.....	1,032 wells
In 1873....do.....do.....	530 "
In 1874....do.....do.....	433 "

* Total from 1869 to 1874, inclusive 4,939 wells.

At round numbers, five thousand wells have been drilled since January 1, 1869, producing forty-two millions of barrels, at an average price of \$2 91, giving a production to each well of 8,400 barrels, and a gross earning of \$24,500. Of the 10,500 wells that have been drilled on or near actual producing territory, 3,250 are pumping to-day, with an average production of less than ten barrels each.

It will be seen that during the last six years we have nearly doubled the average entire production of a well, with but a slight increase in gross revenue. It will also be observed that three hundred wells drilled before January 1, 1871, are pumping to-day.

Making a fair allowance for wells recently started, we shall have the average life of a well at a little over two and one-half years. The annexed table and diagram are given to illustrate this point.

If the cost of drilling the 5,560 wells up to January 1, 1869, was \$4,000 each, the cost of drilling was \$22,240,000. If the cost of drilling the 5,000 wells since January 1, 1869, was \$6,000 each, the cost of drilling was \$30,000,000. Assuming 8,000 wells to have been a success, and to have averaged a life of two years each, at a cost of \$10 per day for all expenses and shut downs, the cost of pumping would be \$58,400,000.

The cost of 39½ square miles of actually producing territory, 25,280 acres at \$500 per acre, \$12,640,000. The petroleum account, therefore, of the actual producing territory only, taking no account of failures or outside operations, is as follows:

Total amount received at wells, to Jan. 1, 1875.....	\$235,475,120	
Cost of drilling.....	\$52,240,000	
Cost of pumping.....	58,400,000	
Cost of territory.....	12,640,000	
	<hr/>	
	123,280,000	
Profit.....	112,195,120	
	<hr/>	
	235,475,120	235,475,120

The net profit, therefore, of producing 67,700,000 barrels of oil, was \$112,200,000, or \$1 67 cents per barrel. If it were possible to include in any statement of this kind, the amount expended in "wild catting" and speculation, it is doubtful if the net profit would amount to \$1 per barrel.

* This estimate of wells drilled is exclusive entirely of those bored on outside non-producing territory.

Much more information of interest can be deduced from the tables given, but it is better that the estimates should be made by the parties who seek it. One further instance only will be given.

We received in 1874, for our oil at the wells...	\$12,765,000	
We paid for drilling 433 wells @ \$5,000.....		\$2,160,000
We paid for pumping 3,300 wells, \$5 $\frac{1}{2}$ day...		5,940,000
We have increased our stock of crude on hand,		
1,400,000 barrels, at \$1 17.....		2,380,000
Balance.....		2,285,000
	<hr/> 12,765,000	<hr/> 12,765,000

OFFICIAL OIL RETURNS.

Table of returns from parties engaged in the storage and transportation of petroleum oil for the year A. D. 1875, made pursuant to the act of 15th May, A. D. 1874, to the Bureau of Industrial Statistics of the State of Pennsylvania.

COMPANIES.	Quarter ending March 31, 1875, bbls. of 42 gals.	Quarter ending June 30, 1875, bbls. of 42 gals.	Quarter ending Sept. 30, 1875, bbls. of 42 gals.	Quarter ending Dec. 31, 1875, bbls. of 42 gals.
American Transfer Company.....	122,263.45	127,016.41	105,108.23	39,459.02
Antwerp Pipe Company.....	81,584.34	50,365.49	61,013.77	179,814.13
Atlantic Pipe Line.....	5,575.35	5,900.98	4,688.19	3,925.59
Church Run Pipe Company.....	3,732.00	3,580.00	3,513.00	2,673.00
Charley Run Pipe Company.....	13,512.97	8,603.58	283,571.76	272,958.99
Cherry Tree Run Pipe Line.....	152,585.50	9,114.96	7,837.35	9,578.17
Columbia Conduit Company.....	7,112.36	141,940.74	109,664.99	97,240.78
Franklin Pipe Line.....	121,885.21	123,616.87	98,446.46	53,792.24
Grant Pipe Company.....	114,437.47	5,609.04	9,382.56	8,594.35
Karns Pipe Line.....	6,622.39	33,685.15	31,236.11	24,663.56
New York and Allegheny Oil Company.....	21,788.45	15,455.60	76,590.99	82,647.51
New York Pipe Company.....	11,356.40	83,033.90	164,881.00	8,335.08
Octave Oil Company.....	83,033.90	130,500.19	7,113.01	101,794.26
Oil City Pipe Company.....	2,959.35	4,254.56	23,792.56	23,771.34
Olean Pipe Company.....	21,458.27	23,084.63	123,375.00	68,455.23
Pennsylvania Transportation Company.....	183,636.59	169,472.93	25,207.00	24,812.00
Prentice F. and Company.....	27,674.00	8,048.43	5,973.63	5,404.00
Rochester and Oleopolis Oil Company.....	5,541.44	9,208.54	8,255.85	25,027.37
Relief Pipe Line Company.....	7,505.80	29,280.53	29,701.24	13,555.63
Shaffer Run Pipe Company.....	21,786.03	26,974.28	403,403.95	320,461.78
Shaffer Run Pipe Company.....	20,586.44	15,534.78	440,328.86	455,761.05
Sage Run Pipe Line.....	11,213.90	456,631.77		
Smith's Ferry and Island Run O and T. Company.....	431,303.51	461,322.35		
Titidoute Oil Pipe Company.....	521,754.48			
Titusville Pipe Company.....				
Taft & Payne Pipe Company.....				
Union Pipe Company.....				
United Pipe Lines.....				

Vandergrift, Forman & Co. Pipe Line :

Milton Pipe Line.....	10,025.00	10,352.26	8,727.41	10,475.42
Sandy Pipe Line.....	27,411.35	20,866.06	18,104.84	24,084.37
Total	2,168,781.14	1,989,778.59	2,190,425.77	1,854,318.07

RECAPITULATION.

For quarter ending March 31st.....	2,168,781.14 Barrels.
Do.....do.....June 30th.....	1,989,778.59 "
Do.....do.....September 30th.....	2,190,425.77 "
Do.....do.....December 31st.....	1,854,318.07 "
Total	8,203,303.57 Barrels.

MANUFACTURING INDUSTRIES.

FURNACES.

ARMSTRONG COUNTY.

Monticello Furnace.—M'Knight, Porter & Co. Pig iron. Production in 1874, 4,611 tons of 2,240 pounds; average value per ton, \$27, amounting to \$124,497. Whole number of persons employed, 216. Wages: 30 coal miners, at \$1 75 per day; 50 laborers, at \$1 40; 100 ore miners, at \$1 50; 3 bosses, at \$3 30; 1 superintendent, at \$5 00; 1 store-keeper, at \$2 00; 1 book-keeper, at \$3 00; 20 wagoners, at \$1 35; 10 mule drivers, (boys,) at 80c. Time in operation, 230 days.

Stewartson Furnace.—F. B. & A. Laughlin. Pig iron. Production in 1874, 3,000 tons; value \$75,000. Whole number of persons employed, about 112. Wages: 40 ore miners, at \$1 50 per day; 20 ore teamsters, at \$2; 14 coal diggers, at \$2 for 7 hours; 12 coal diggers, (boys,) at \$1 for 7 hours; 6 cokers, at \$1 70 for 7 hours; 10 drivers, (boys,) at 85 cents for 7 hours; 17 furnace hands, at \$1 90 for 12 hours; 6 teamsters, at \$1 50 for 8 hours; 2 blacksmiths, at \$2 50 for 10 hours; 2 wagon makers, at \$1 75 for 10 hours; 1 coal pit boss, at \$3 50 for 10 hours; 1 manager, at \$3 00 for 10 hours; 1 book keeper, at \$3 00 for 10 hours; 2 storekeepers, at \$1 for 10 hours. Remarks: "We use native ores, and buy it delivered at the furnace by the ton. Cannot give any detailed information in regard to number of hours per day or number of days per week that the diggers work. The number of men engaged in digging and also in hauling, vary so much that we cannot give exact numbers, and have given an approximately correct number."

BERKS COUNTY.

Oley Furnace, Temple.—W. H. Clymer & Co. Coal slag charcoal pig iron. Production in 1874, 936 tons; value, \$35,000. Whole number of persons employed, 78 men. Wages: 1 manager of furnace, at \$3 00 per day; 1 foundryman, at \$1 75; 1 keeper, at \$1 25; 1 gutterman, at \$1 10; 2 fillers, at \$1 10; 2 ore men, at \$1; 5 teamsters, at \$1 16; 1 blacksmith, at \$1 25; 1 wagoner, at \$1 25; 10 ore miners, at \$1 10; 30 woodchoppers, at \$1; 15 colliers, at \$1 20; 8 wood haulers, with horses, at \$1 75.

Robesonia Furnace.—White & Ferguson, Robesonia, Pa. Pig iron. Production in 1874, 5,543 tons. No value given. Whole number of persons employed, about 50 men. Wages: 12 ore miners, at \$1 60 per day; 20

furnace hands, at \$1 75; 2 carpenters, at \$2 00; 1 blacksmith, at \$1 75; 1 foreman, at \$2 50; 2 engineers, at \$2 00; 10 laborers, at \$1 50; 1 superintendent; 1 clerk. In operation eleven months.

Topton Furnace.—Topton Iron company, Topton, Pa. Anthracite pig iron. Production in 1874, 1,850 tons; value, \$40,000. Whole number of persons employed, 40 men. Wages per day: 1 founder, at \$3 30; 2 keepers, at \$1 80; 4 helpers, at \$1 65; 8 fillers, at \$1 55; 8 cinder snappers, at \$1 55; 3 engineers, at \$1 88; 10 laborers, at \$1 10; 1 blacksmith, at \$1 70; 1 carpenter, at \$1 70; 2 iron men, at \$1 50. In operation three months.

Temple Furnace.—Temple Iron company, Temple, Pa. Anthracite pig iron. Production in 1874, 1,900 tons; value, \$47,900. Whole number of persons employed at furnace, 32; and at mines, 275. Wages per day: 2 founders, at \$1 75; 16 furnace hands, at \$1 37; 2 engineers, at \$1 48; 1 blacksmith, at \$1 35; 1 carpenter, at \$1 67; 10 laborers, at \$1 10; 275 miners, at \$1 00.

Monocacy Furnace.—Wright, Cook & Co., Monocacy, Pa. Pig iron. Production in 1874, 5,237 tons; value not given. Whole number of persons employed, 40. Wages per day: 2 engineers, at \$1 75; 1 blacksmith, at \$1 80; 19 furnace hands, at \$1 50; 18 laborers, at \$1 15. Remarks: "This furnace was out of blast until the latter part of March, 1874, making repairs, and blew out again in March of this year, (1875,) owing to the low price of iron making it not profitable to run."

East Penn Iron Co., Lyons, Pa.—The works contain two blast furnaces ready for operation to make steel pig iron. They were built in 1874, but have not been in operation during the year.

Bechtelsville Furnace.—Bechtelsville Iron company, Bechtelsville, Pa. Furnace not finished.

Mt. Penn Furnace.—Hunsicker & Co., Reading, Pa. Pig iron. Production in 1874, 260 tons cold blast charcoal pig iron; value, \$34 00 per ton, amounting to \$8,840. Whole number of persons employed, 29 men. Wages per day: Average, \$1 00 each for 2 boss colliers, 2 teamsters, 8 furnace men, 6 helpers, and 2 wood hands. Remarks: "Owing to depression in the iron trade, made as short a blast as possible."

Henry Clay Furnaces.—Eckert & Bro., Reading, Pa. Anthracite pig iron. Production in 1874, 12,812½ tons of 2,240 lbs.; value, \$305,714 86. Whole number of persons employed, 72 at furnaces, and 119 at mines. Wages per day: 2 clerks, at \$3 19; 1 founder, at \$4 11; 2 blacksmiths' helpers, at \$1 89; 1 superintendent, at \$2 89; 2 carpenters, at \$2 35; 4 keepers, at \$1 97; 4 first helpers, at \$1 77; 2 second helpers, at \$1 59; 4 engineers, at \$1 80; 16 fillers, at \$1 59; 1 night boss, at \$2 22; 1 watchman, at \$1 10; 19 laborers, at \$1 24; 9 cindermen, at \$1 59; 1 pig iron

weigher, at 13 cents per ton; 1 cinder boss, at \$2 16; 1 mining superintendent, at \$3 20; 1 exploring agent, at \$3 83; 112 miners, at \$1 21; 7 mining bosses, at \$2 40. In operation during the entire year.

Hopewell Furnace.—Clingan & Buckley, Douglassville, Pa. Charcoal pig iron. Production in 1874, 800 tons. Part of this iron remains on hand unsold. Whole number of persons employed, 25. Wages per day: average, \$1 00 each for 6 colliers, 5 furnacemen, 2 teamsters, 7 miners, 1 manager, 1 clerk, 1 hostler, 1 smith, and 1 wheelwright. In operation eleven months.

Keystone Furnaces, Nos. 1 and 2.—E. & G. Brooke, Birdsboro', Pa. Anthracite pig iron. Production in 1874, 8,572 tons; value, \$240,016. Whole number of persons employed, 210. Average daily wages paid at mines, \$1 10; at furnace, \$1 42. Miners worked 200 days; furnace in blast during entire year.

BLAIR COUNTY.

Bennington Furnace.—Blair Iron and Coal company, Bennington Furnace, Pa. Bessemer pig iron. Production in 1874, 5,720 tons. Value, \$26 per ton, amounting to \$148,720. Whole number of persons employed, 67. Wages per day: 45 furnacemen at \$1 30; 16 laborers at \$1 20; 1 carpenter at \$1 65; 1 blacksmith at \$1 90; 2 foremen at \$2 25; 1 clerk at \$2 50; 1 founder at \$3 50.

Frankstown Furnace.—Blair Iron and Coal company, Hollidaysburg, Pa. Pig iron. Production in 1874, 4,621 tons. Value, \$20 per ton, amounting to \$92,420. Whole number of persons employed, 53. Wages per day, 36 furnacemen at \$1 27; 11 laborers at \$1; 1 carpenter at \$1 25; 1 blacksmith at \$2; 2 foremen at \$2 25; 1 clerk at \$2 50; 1 founder at \$3.

Gaysport Furnace.—Blair Iron and Coal company, Hollidaysburg, Pa. Pig iron. Production in 1874, 5,753 tons. Value, \$20 per ton, amounting to \$115,060. Whole number of persons employed, 50. Wages per day, 25 furnacemen at \$1 27; 19 laborers at \$1; 1 carpenter at \$2 40; 1 blacksmith at \$2 55; 2 foremen at \$2 25; 1 clerk at \$2 50; 1 founder at \$3.

Hollidaysburg Furnace.—Blair Iron and Coal Co., Hollidaysburg, Pa. Pig iron. Production in 1874, 4,692 tons. Value \$20 per ton, amounting to \$93,840. Whole number of persons employed, 40. Wages per day: 21 furnacemen at \$1 27; 13 laborers at \$1; 1 carpenter at \$2 40; 1 blacksmith at \$2 55; 2 foremen at \$2 25; 1 clerk at \$2 50; 1 founder at \$3.

Etna Furnace and Forges.—G. D. Isett & Bro., Yellow Springs, Pa. Charcoal pig iron and blooms. Production in 1874, not given; value, \$40,000. Whole number of persons employed, about 75. Wages per day: 10 forgemen, at \$1 50 for nine months; 10 furnacemen, at \$1 15 for eight months; 3 blacksmiths, at \$1 34 for twelve months; 1 carpenter, at \$1 73 for twelve months; 9 teamsters, at \$1 08 for twelve months; 1 miller, at

\$1 50 for twelve months; 4 bosses, clerks, &c., at \$1 75 for twelve months; 36 laborers, at 85 cents for ten months. Remarks: "This company is also engaged in farming, which employs considerable of the time mentioned. Proceeds of farming consumed principally by employees."

Juniata Furnace.—Williamsburg Manufacturing company, Williamsburg, Pa. Anthracite pig iron. Production in 1874, 2,229 tons; value, \$59,068 50. Whole number of persons employed, 24. Wages per day: 1 founder, at \$2 10; 2 keepers, at \$1 40; 18 laborers, at \$1 18; 2 boys, at 75 cents; 1 carpenter, at \$1 85. In operation during the entire year.

Rodman Furnaces.—Chas. Knap & Co., Roaring Springs, Pa. Pig iron. Production in 1874 and value thereof not stated. Whole number of persons employed, 50 at the furnaces, and 100 at the mines. Wages per day: 5 foremen, at \$4 00 for six months; 2 machinists, at \$3 00 for six months; 2 engineers, at \$3 00 for six months; 2 carpenters, at \$2 75 for six months; 150 laborers, at \$1 00 for two months. Remarks: "Furnaces out of blast since 1874. Capacity of two stacks, 30 tons daily. Mines doing very little; capacity, 100 tons daily, at \$3 00 per ton. We have two furnace stacks, one of nine feet bosh, and one of thirteen feet bosh. Steam and water power. Use coke and hematite ore. We have at our mines six double washing machines for washing dirt from ore; capacity of each machine, 20 tons daily."

Springfield Furnace.—John Royer; A. M'Allister, manager, Royer, Pa. Charcoal, pig iron. Production in 1874, 1,500 tons. Value, \$45,000. Whole number of persons employed, about 120 men and boys. Wages per day: 1 founder, \$1 50; 8 furnace hands, at \$1 10; 6 carters, at \$1 30; 30 colliers, at \$1 30 for 8 months; 60 wood choppers, at \$1 00 for 6 months; 7 common laborers, at \$1 00. Furnace in operation during entire year.

Gap Furnace.—Johnston & Hemphill, M'Kees, Pa. Pig iron. Production 2,768 tons, in year ending Nov. 30, 1875. Value, \$63,664. Whole number of persons employed, 35. Wages per day: 1 manager, \$2 25; 1 founder, at \$2 75; 1 blacksmith, at \$1 65; 3 engineers, at \$1 35; 2 keepers at \$1 60; 2 helpers, at \$1 50; 6 fillers, at \$1 35; 1 cinder-snapper, \$1 75; 10 miners, at \$1 50; 9 laborers, at \$1 12. In operation 11 months during the year.

CENTRE COUNTY.

Logan Furnace.—Valentines & Co., Bellefonte, Pa. Cold blast charcoal pig iron. Production in 1874, 3,000 tons gross. Value, \$100,000. Whole number of persons employed, 81. Wages per day: 1 founder, at \$2 00; 3 keepers, at \$1 50; 2 fillers, at \$1 50; 2 bankmen, at \$1 75; 1 gutter-man, at \$2 75; 2 ore stockers, at \$1 60; 2 coal stockers, at \$1 25; 2

boss ore miners, at \$2 00 ; 2 engineers, at \$2 50 ; 24 laborers, at \$1 25 ; 5 teamsters, at \$1 50 ; 13 wood choppers, at \$1 60 ; 15 colliers, at \$1 50 ; 5 teamsters, at \$1 50 ; 1 general manager, at \$6 00 ; 1 clerk, at \$2 00. In operation 50 weeks during the year. Remarks: " Wood cutting is done during half of the year, and coaling during the other half. Have given men required in each department as working three hundred days. Transportation of charcoal done mostly by rail, of which we make no estimate."

COLUMBIA COUNTY.

Irondale Furnace.—Bloomsburg Iron Co., Bloomsburg, Pa. Pig iron. Production in 1874, 6,325 tons gross. Value, about \$157,290. Whole number of persons employed, 225 men and boys. Wages per day ; 25 teamsters, at \$1 25 ; 36 furnacemen and laborers, at \$1 30 , 2 carpenters, at \$2 25 ; 2 blacksmiths, at \$2 00 ; 10 bosses, clerks, &c , at \$2 25 ; 125 miners, (of whom 25 are boys,) at \$1 00 and \$1 30.

Bloom Furnace.—Wm. Neal & Sons, Bloomsburg, Pa. Anthracite Forge and Foundry. Pig iron. Production in 1874, 6,663 net tons. Value, \$135,000. Whole number of persons employed, about 150 ; 1 founder, 1 boss laborer, 2 carpenters, 2 blacksmiths, 4 engineers, 1 boss miner, 80 miners, 1 boy at mines, 22 furnacemen, 10 laborers, 26 teamsters, 1 weigh-master.

Remarks: " We cannot give average daily wages, as all our miners and teamsters work by the ton, and much of our labor at the furnace is done by the ton or job. Our monthly pay, exclusive of coal and limestone, is about \$7,188. Time in operation during 1874, 42 weeks."

CHESTER COUNTY.

Isabella Furnace.—Smith & Bros., Barneston, Pa. Cold blast charcoal pig iron. Production in 1874, 535 tons. Value, not given. Whole number of persons employed, 120. Wages per day : teamsters, miners, wood-choppers, laborers, and furnacemen, average \$1 20. Remarks: " Blew in October 26, 1874. Furnace not in blast since February, 1875.

CUMBERLAND COUNTY.

Carlisle Iron Works.—One furnace and 1 forge ; C. W. & D. V. Ahl, Carlisle, Pa. Neutral charcoal, pig iron and blooms. Production in 1874, 2,000 tons pig iron and 1,200 tons blooms. Value, \$100,000. Whole number of persons employed, 200, including wood choppers, 1 superintendent, 2 foremen, 1 founder, 12 forgemen, 10 teamsters, 25 ore miners, 25 laborers, and 125 wood choppers and outside men. Wages: average for laboring men, \$1 00 per day, and for skilled labor, \$2 50.

Pine Grove Furnace.—South Mountain Iron Co., Mountain Creek, Pa. Charcoal pig iron. Production in 1874, 1,600 tons. Value, \$45,000. Whole number of persons employed, 65. Wages per day: 1 founder, at \$2 25 for 10 months; 1 wood boss, at \$2 25 for 10 months; 15 furnace-men, at \$1 15 for 10 months; 43 wood choppers, at \$1 25 for 4 months; 5 teamsters, at \$1 15 for 12 months.

DAUPHIN COUNTY.

Paxton Furnaces.—M'Cormick & Co., Harrisburg, Pa. Pig iron. Production in 1874, 12,007 tons. Value, \$300,000. Whole number of persons employed, 289, including ore banks and quarries. Wages per day: 2 foremen, at \$2 50; 2 bosses, at \$2 25; 3 blacksmiths, at \$2 35; 4 carpenters; 4 engineers, at \$2 00; 274 laborers, at \$1 40.

Remarks: "Two blast furnaces in operation 11 months. During the month they were out of blast the hands were all employed at repairing."

Manada Furnace.—Grubbs & Bland, West Hanover, Pa. Charcoal pig iron. Production in 1874, 1,572 tons. Value, \$59,000. Whole number of persons employed, 85. Wages per day, 1 manager, at \$3 20; 1 clerk, at \$2 00; 8 furnace hands, at \$1 00; 6 teamsters, at \$1 00; 1 blacksmith, at \$1 65; 1 carpenter, at \$1 10; 18 colliers, at \$1 10; 6 wood haulers, at \$3 00; 3 laborers, at \$1 00; 40 wood choppers, at \$1 00. Remarks: "Wood hauled by the cord, at 20 cents per cord. Wood cut by the cord, at 50 cents per cord. Excepting wood choppers and colliers, the above persons were furnished with houses free of rent, garden, wood for fuel, $\frac{1}{4}$ acre for potato ground, and pasture for cow.

Cameron Furnace.—Cameron Furnace company, Middletown, Pa. Anthracite pig iron. Production in 1874, 487 tons; value, \$11,201. Whole number of persons employed, from 35 to 40. Wages per day: 1 founder, at \$2 74; 2 keepers, at \$4; 30 laborers, at \$1 34; 2 superintendents, at \$3. Remarks: "Time in operation during the year, 28 days. The founder has a yearly salary of \$1,000."

Wister Furnace.—J. & J. Wister, Harrisburg, Pa. Anthracite pig iron. Production in 1874, 5,376 tons of 2,268 pounds; value of sales \$144,214 88. Whole number of persons employed, 33; 1 superintendent, 1 manager, 1 founder, 2 engineers, 1 blacksmith, 1 carpenter, 2 keepers, 2 helpers, 10 fillers, 7 laborers and 1 clerk. Average daily wages, \$1 50 per day. In operation during the entire year.

ERIE COUNTY.

Erie Furnace.—Rawle, Noble & Co., Erie, Pa. Charcoal pig iron. Production in 1874, 1,153 gross tons. Value, \$34,590. Whole number of persons employed, about 50. Wages per day: 1 founder, at \$3; 2 engin-

eers, at \$2 40; 2 keepers, at \$2; 2 helpers, at \$1 50; 6 fillers, at \$1 50; 14 laborers, at \$1 35; 2 charcoal burners, at \$2 25; 21 wood-choppers, at \$1 25. In operation 3 months.

Remarks: "Furnace in blast from September 28th to end of the year; now out of blast on account of low prices and poor demand, the cost of production being more than product is worth. We have one stack only; capacity, yearly, 7,500 tons of charcoal iron. Receive ore on our own docks, and also have railroad connections."

FAYETTE COUNTY.

Dunbar Furnace.—Beeson & Hogsett, Dunbar, Pa. Pig iron. Production in 1874, 15,400 tons of 2,268 pounds; value, \$300,000. Whole number of persons employed, 325. Wages per day: 1 manager, at \$4; 6 clerks, at \$3; 2 weighmasters, at \$2 75; 127 ore miners, at \$2 25; 8 coal miners, at \$2; 4 engineers, at \$2 25; 4 mining managers, at \$4; 2 machinists, at \$2 25; 3 carpenters, at \$2 25; 170 laborers at \$1 50. In operation during entire year.

FRANKLIN COUNTY.

Franklin Furnace.—Hunter & Springer, St. Thomas, Pa. Charcoal and pig iron. Production in 1874, 1,416 tons. Value \$45,000. Whole number of persons employed about 100. Wages of common labor about \$1 00 per day. In operation during 8 months of the year.

Mont Alto Furnace and Forge.—Mont Alto Iron Co., Mont Alto, Pa. Charcoal, pig iron and blooms. Production in 1874 3,855½ tons pig iron and 1,116 tons blooms. Total value \$236,397. Whole number of persons employed 262. Wages per day, 1 foreman at \$2 35; 1 master mechanic at \$2 25; 6 blacksmiths and helpers at \$1 60; 8 carpenters and wheelwrights at \$1 35; 1 machinist at \$2 00; 1 moulder at \$1 25; 4 engineers at \$1 37; 4 watchmen at \$1 25; 1 stable boss at \$2 00; 12 teamsters at \$1 33; 13 furnace men at \$1 26; 17 forgemen at \$1 50; 6 mining bosses at \$1 70; 73 laborers at \$1 00; 18 boys at 50 cents; 94 wood choppers and colliers at \$1 05; 4 clerks and storekeepers at \$2 00. In operation during entire year.

Remarks: "We manufacture charcoal, mine ore for our own use and for sale, quarry limestone, do our own hauling, and manufacture charcoal, pig iron and charcoal blooms for boiler plate and wire. We build our own wagons, do our own repairing, &c. Thus some portions of the year we have many more men employed than at others. In the winter hundreds of wood choppers who during the summer do farm and other work."

HUNTINGDON COUNTY.

Barree Furnace and Forge.—A. L. Mumper, Barree Forge, Pa. No production in 1874. Whole number of persons employed, 193 men and boys.

Wages per day: 100 wood-choppers, at \$1 per day, for four months; 20 colliers, at \$1 75; 25 laborers, at \$1; 12 carpenters, at \$2 25; 6 masons, at \$4; 10 other mechanics, at \$2; 20 boys.

Remarks: "We were merely preparing to start, but owing to death of Mr. Mumper, in April, have shut up."

Greenwood Furnaces.—Logan Iron and Steel company, Greenwood Furnace, Pa. Charcoal pig iron. Production in 1874, 2,068 tons. Value, \$85,000. Whole number of persons employed, 250. Wages per day: 16 furnace hands, at \$1 35; 44 colliers at \$1 50; 15 teamsters at \$1 35; 28 laborers at \$1 00; 120 wood-choppers at 75 cents; 20 ore miners at \$1 40; carpenters at \$2; 3 blacksmiths at \$2; 1 miller at \$1 75. Furnace in blast 10 months during the year.

LANCASTER COUNTY.

Kaufman Furnace.—C. S. Kaufman, Columbia, Pa. Anthracite pig iron. Production in 1874, 5,500 tons. Value \$125,000. Whole number of persons employed, about 80 men and boys. Wages per day: at furnace and quarries, about \$1 20; at ore bank, \$1.

Donegal Furnace.—Benson & Cottrell, Columbia, Pa. Pig iron. Average annual product of last blast, 5,500 tons. Remarks: "Furnace has been out of blast, and has made no iron since October, 1873. We have, therefore, no men employed, except as watchmen, &c."

St. Charles and Henry Clay Furnaces.—C. B. Grubb & Son. Pig iron. Production in 1874, 10,000 tons of 2,240 pounds. Value, \$220,000. Whole number of persons employed, 160 men. Wages per day: for furnace labor, miners and quarrymen, about \$1. In operation during entire year.

Chickies Furnaces.—E. Haldeman & Co., Chickies, Pa. Pig iron. Production in 1874, 11,264½ tons of 2,240 lbs. Value, \$281,612. Whole number of persons employed, 175. Wages per day: 2 bosses, at \$2 00; 4 keepers, at \$1 50; 4 helpers, 4 cindermen, 4 engineers, 1 gutterman and 1 stable boss, at \$1 30 each; 2 guttermen, 2 laborers, 14 fillers, at \$1 20 each; 19 laborers, at \$1 00; 1 blacksmith, at \$1 80; 1 blacksmith, at \$1 40, and 1 blacksmith, at \$1 50; 1 carpenter, at \$2 00; 1 painter, at \$1 30; 4 car conductors, at \$1 50; 1 quarryman, at \$1 70, and 7 quarrymen, at \$1 25 each; 1 clerk, at \$2 00, and 1 clerk, at \$1 00.

At ore mines: 1 superintendent, at \$2 50; 1 boss, at \$1 34; 1 boss, at \$1 25; 1 boss, at \$1 11; 1 engineer, at \$1 30; 1 engineeer, at \$1 20; 2 engineers, at \$1 10; 28 laborers, at \$1 00; 57 laborers, at 90 cents; 1 boy, at 85 cents; 1 boy, at 75 cents; 1 boy, at 50 cents; 3 teamsters, at \$1 11. In operation during entire year.

Marietta Furnaces, Nos. 1 and 2.—Ethelbert Watts, No. 1, and Wm. M. Watts, No. 2, Marietta, Pa. Pig iron. Marietta Furnace, No. 1, annual

capacity, 5,000 tons. No. 2, the same. Value of production, about \$150,000 each. Whole number of persons employed, 150 at each furnace, including men at ore banks and quarries. Wages paid not given.

Musselman Furnace.—H. Musselman & Son, Marietta, Pa. Pig iron. Production in 1874, not stated, but value given at \$52,567. Whole number of persons employed, 25. Average daily wages of employees, \$1 25. In operation during 5½ months of the year.

LAWRENCE COUNTY.

Neshannock Furnace.—Neshannock Iron Co., New Castle, Pa. Pig iron. Production in 1874, 14,000 tons of 2,268 lbs. Value, \$350,000. Whole number of persons employed, 40. Wages per day: 2 keepers, at \$2 00; 2 helpers, at \$1 75; 2 hot blast men, at \$1 75; 8 fillers, at \$1 75; 2 cinder men, at \$1 50; 2 engineers, at \$2 12½; 1 blacksmith, at \$1 75; 2 iron men, at \$3 00; 2 iron loaders, at \$2 00; 15 laborers, at \$1 35; 2 foremen, at \$3 00. In operation during the entire year. Remarks: "About one-half of our product for past year was iron for conversion into bessemer steel, which will bring up the average value to about \$25 per ton. The price varied so that it is impossible to get at an exact value."

Hope Furnace.—Joseph S. Brown & Co., Rose Point, Pa. Charcoal pig iron. Production in 1874, 1,200 tons. Value, \$48,000. Whole number of persons employed, 50. Wages per day: 1 founder, at \$2 50; 2 engineers, at \$1 65; 47 laborers, at \$1 35. In operation 10 months during the year.

Wampum Furnace.—Wampum Furnace Co., Wampum, Pa. Pig iron. Production about 8,000 tons per year. Value \$176,000. Whole number of persons employed 40. Wages per day, 1 carpenter at \$2 25; 1 blacksmith at \$2 25; 1 helper at \$1 75; 2 keepers at \$2 00; 2 engineers at \$2 00; 31 laborers at \$1 35; 1 foreman at \$5 00; 1 book-keeper at \$3 00. Remarks: "We generally run steady from year to year, and only stop for repairs. Our pay roll averages about \$2,200 per month.

Clara Furnace.—Crowther Iron Co., New Castle, Pa. Pig iron. Production in 1874, 16,000 tons at \$22 00 per ton. Value \$352,000. Whole number of persons employed 40. Wages per day, 1 clerk at \$2 15; 1 foreman at \$4 00; 2 keepers at \$2 00; 2 helpers at \$1 75; 10 fillers at \$1 60; 23 laborers at \$1 35. In operation during entire year. Remarks: "Of manufactured metal one-third of last year's product remains on hand."

LEBANON COUNTY.

Donaghmore Furnace—R. W. Coleman's heirs, Lebanon, Pa. Anthracite pig iron. Production in 1874 not given. Value stated at \$150,000. Whole number of persons employed 30, averaging \$1 40 per day each. In operation during entire year.

Meily's Furnace—J. & R. Meily, Lebanon, Pa. Pig iron. Production in 1874 5,272 tons of 2,240 lbs. Value \$116,000. Whole number of persons employed 20. Wages per day, 18 furnacemen at \$1 35; 2 laborers at \$1 00. Remarks: Furnace in operation during entire year.

Sheridan Furnace—Wm. M. Kaufman & Co., Sheridan, Pa. Anthracite pig iron. Production in 1874 6,624 tons. Value \$183,224 97. Whole number of persons employed 40. In operation during entire year.

MERCER COUNTY.

Stewart Furnaces.—Stewart Iron company, Sharon, Pa. Pig iron, muck bar and blooms. Production in 1874, 3,000 tons Bessemer pig iron. Value not given. Whole number of persons employed, 30. Wages per day: 2 foremen, at \$4; 2 engineers, at \$2 50; 2 keepers, at \$2 25; 2 helpers, at \$1 75; 2 firemen, at \$1 75; 4 fillers, at \$1 75; 1 blacksmith, at \$2; 1 smith's helper, \$1 50; 1 locomotive engineer, at \$3; 1 fireman, at \$1 90; 12 laborers, at \$1 50.

Remarks: "The Stewart Iron works consist of one puddle mill, containing 16 puddle furnaces, 1 steam hammer, 1 double train of 3 high muck rolls, and when running double turn employs 85 men, and can produce 7,000 tons of muck bar per annum; two blast furnaces, one 12½ feet bosh, 51 feet high, the other 14 feet bosh, 55 feet high, and when these furnaces are in blast they give employment to 60 men, and can produce 22,000 tons of pig iron per annum. A specialty is made of Bessemer pig iron from Jackson ore. The only part of these works operated during the year 1874, was one blast furnace, which was in blast from February 25th to June 6th, 1874, when it was blown out in consequence of depression in the iron business."

Mount Morris Coal and Iron Company.—Furnace out of blast.

Shenango Furnaces—Shenango Furnace company, Middlesex, Pa. Out of blast.

Ormsby Furnace.—Ormsby Furnace company, Sharpsville, Pa. Pig iron. Production in 1874, 8,000 tons. Value not stated. Whole number of persons employed, 30 men; 1 foreman and 29 laborers. Wages per day: average, \$1 50. In operation 11 months during the year.

Spearman Furnaces.—Spearman Iron company, Sharpsville, Pa. Pig iron. Production in 1874, 11,436 tons, gross. Value \$286,000. Whole number of persons employed, 27. Wages per day: 1 founder, at \$3; 2 keepers, at \$2; 2 helpers, at \$1 75; 2 engineers, at \$2 25; 8 fillers, at \$1 50; 3 iron carriers, at \$1 50; 1 cinderman, at \$1 75; 1 blacksmith, at \$2; 1 crusherman, at \$1 50; 1 teamster, at \$1 50; 5 laborers, at \$1 35; 1 book-keeper, at \$3.

MIFFLIN COUNTY.

Emma Furnace.—Logan Iron and Steel Co., Lewistown, Pa. Charcoal, pig iron and rolled bar iron. Production in 1874, 1,567 tons of pig iron. Value \$62,720, and 844 tons of bar iron, value \$56,745. Whole number of persons employed, 183. Wages per day: 33 rolling mill hands at \$1 40; 6 puddlers and helpers at \$2 50; 13 furnacemen at \$1 25; 2 carpenters at \$1 50; 2 blacksmiths at \$1 70; 80 wood choppers at \$1 50; 27 colliers at \$1 50; 19 laborers at \$1 10; 1 foreman at \$4 00. Foreman employed 12 months; carpenters and smiths 11 months; rolling mill hands, puddlers and helpers, furnacemen and laborers 9 months; colliers 8 months; wood-choppers 4 months.

Lewistown Furnaces.—Glamorgan Iron Co., Lewistown, Pa. Anthracite pig iron. Production in 1874, 4,000 tons. Value, \$87,500. Whole number of persons employed, from 30 to 40. Wages per day: 2 engineers at \$1 50; 2 keepers at \$1 40; 2 helpers at \$1 25; 8 fillers at \$1 25; 4 cindermen at \$1 45; 2 guttermen at \$1 40; 4 to 8 laborers at \$1 10; 1 blacksmith at \$2 00; 1 carpenter at \$2 00; 1 foreman at \$2 50; 1 clerk at \$2 00; 1 superintendent at \$6 75. In operation 11 months during the year. Remarks: "During the year 1874, we were only running our small furnace. This year we are running our larger one, and our present product is about 600 tons per month. Our full capacity is 975 or 1,000 tons per month."

MONTGOMERY COUNTY.

Swede Furnaces.—James Lanigan, Swedeland, Pa. Anthracite pig iron. Production in 1874, 14,725 tons. Value, \$276,960. Whole number of persons employed, 52. Wages per day: 1 superintendent at \$4 75; 1 founder at \$3 00; 4 keepers at \$2 00; 4 helpers at \$1 75; 8 fillers at \$1 75; 4 top hoisters at \$1 75; 6 cindermen at \$1 75; 2 iron men at \$1 80; 1 machinist at \$3 00; 2 blacksmiths at \$2 25; 1 carpenter at \$2 25; 8 laborers at \$1 50; 4 engineers at \$2 00; 2 clerks at \$2 25; 4 extra men. In operation during entire year.

Marion and Elizabeth Furnaces.—J. B. Moorhead & Co., Conshohocken, Pa. Foundry and forge pig iron. Production in 1874, 13,241 tons. Value \$344,266. Mined 7,100 tons of ore. Value \$28,400. Whole number of persons employed, 110. Wages per day: 1 foreman at \$3 00; 3 bosses at \$1 65; 1 machinist at \$3 00; 28 furnacemen at \$1 75; 53 miners and laborers at \$1 43; 24 boys at 90 cents. In operation during entire year. Remarks: "We have our own hematite mines, which accounts for the large number of laborers and boys. Our furnace in blast only 9 months."

Norristown Iron Works.—(Furnace and Rolling Mill,) James Hooven & Sons, Norristown, Pa. Skelp iron. Production from May 15, 1875, to October 9, 1875, 1,040 tons of 2,240 lbs. Value, \$70,000. Whole number

of persons employed, 74. Wages per day: 1 roll turner, at \$3 00; 1 machinist, at \$2 25; 1 apprentice, at 75 cents; 2 engineers, at \$2 25; 1 blacksmith, at \$2 50; 1 helper, at \$1 25; 1 carpenter, at \$2 50; 12 puddlers, at \$2 75; 12 helpers, at \$1 75; 2 hammermen, at \$3 00; 1 roller puddler, at \$3 15; 1 catcher, at \$2 75; 3 other roll hands, at \$4 65; 1 cover heater, at \$3 17; 1 helper, at \$2 08; 1 roller, at \$1 92; 1 catcher, at \$1 68; 3 other roll hands, at \$3 15; 2 heaters, at \$4 20; 2 helpers, at \$2 10; 1 roller, at \$4 92; 1 rough roller, at \$3 24; 2 catchers, 1 at \$2 82 and 1 at \$2 00; 2 dragouts, 1 at \$2 00 and 1 at \$1 92; 2 hookups, 1 at \$1 44 and 1 at \$1 75; 1 oiler, at \$1 75; 2 carters, 1 at \$1 25 and 1 at \$1 50; 1 watchman, at \$1 50; 10 laborers, at \$1 25; 1 clerk, at \$2 00; 1 weighmaster, at \$2 00. For the 74 men, average daily wages, \$2 09.

Remarks: "The blast furnace has been idle since February, 1874. The rolling mill has been running a little over half time since May 15, 1875."

Montgomery Furnace.—Montgomery Iron Co., Port Kennedy, Pa. Anthracite pig iron. Production, not stated. Value, \$200,000. Whole number of persons employed, 35. Wages per day: 33 men, at \$1 50 each; 1 manager and 1 secretary and treasurer, wages not stated. In operation during the entire year 1874.

Edgehill Furnace.—Edgehill Iron Co., Edgehill, Pa. Anthracite pig iron. Production in 1874, 11,300 tons. Value, \$282,500. Whole number of persons employed, 130. Wages per day: 2 clerks, 2 carpenters, 2 blacksmiths, 2 engineers, 20 furnacemen, 4 bosses, 4 engineers, 8 carters, 85 laborers, average \$1 75. In operation 360 days during the year.

Warwick Furnace.—Warwick Iron Co., Pottstown, Pa. Pig iron. Furnace not completed and not in blast.

MONTOUR COUNTY.

Columbia Furnaces.—Grove Brothers, Danville, Pa. Anthracite pig iron. Production in 1874, 7,901 tons. Value, \$225,204 10. Whole number of persons employed, 216, at furnaces and mines. Wages per day: furnacemen, 4 keepers, 2 engineers, at \$1 82; 4 helpers, 14 fillers at \$1 23; 8 cinder-men, 3 dumpers, at \$1 23; 1 moulder at \$1 37; 2 carpenters at \$2 36; 1 blacksmith at \$1 69; 1 weigh-master at \$1 60; 23 laborers at \$1 16. Ore miners: 64 iron ore miners at \$1 64; 17 laborers at \$1 19; 4 engineers at \$1 68; 11 teamsters at \$3 50; 1 blacksmith at \$1 99; 3 superintendents of mines at \$3 59. Coal miners: 11 coal miners at \$5 59, (each pay their helper out of this amount;) 19 laborers at \$2 04; 9 boy slate pickers at 57 cents; 1 outside boss at \$3 45; 1 inside boss at \$3 84. Lime-stone quarry: 1 quarry boss at \$2 50; 11 quarrymen at \$1 38. Remarks: "All the miners work by the ton, and we give you their average daily earnings, calculated as if they had worked 26 days in each month. The coal

miner pays his laborer out of the amount we give you as his average daily earnings. We have no way of finding out what amount he pays his laborer. Our No. 1 furnace was in operation day and night during 6 months and 9 days. Our No. 2 furnace was in operation day and night during 10 months and 26 days. The keepers, helpers, fillers, engineers and cindermen are paid by the week, as they work 7 days in a week; but we have averaged their wages daily at the rate of 26 days to the month. The superintendent of mines and engineers at iron ore mines are all paid by the month and we have averaged their wages in the same way."

NORTHAMPTON COUNTY.

Glendon Furnaces.—Glendon Iron Co., Easton, Pa. Anthracite pig iron. Production in 1874, 46,900 tons. Value not stated. Whole number of persons employed, 350. Wages per day: 4 founders and assistants, 6 engineers, 120 furnace hands, 75 laborers, 25 machinists, 15 foundry men, 7 carpenters, 10 blacksmiths, 60 quarrymen, 30 ore miners, average \$1 85. In operation during 36 weeks of the year.

Saucon Furnaces.—Saucon Iron Co., Hellertown, Pa. Anthracite pig iron. Production in 1874, 8,231 tons. Value, \$251,210 12. Whole number of persons employed, 235. Wages per day: 10 bosses, at \$3 33½; 5 machinists, at \$2 00; 3 carpenters, at \$2 50; 217 laborers and furnacemen, at \$1 30. Average \$1 42 each. In operation during entire year. Remarks: "We have two stacks, but have had only one in blast during 1874."

Keystone Furnace.—Keystone Iron Co., Easton, Pa. Anthracite pig iron. Not yet in blast

PERRY COUNTY.

Marshall Furnace.—Marshall Iron Co., Newport, Pa. Bessemer and No. 1 Juniata pig iron. Production in 1874, 4,438 tons. Value, \$146,454. Whole number of persons employed, 44. Wages per day: 1 carpenter, at \$1 80; 1 blacksmith, at \$1 80; 26 furnacemen, at \$1 30; 16 laborers, at \$1 05. In operation during 8 months of the year.

SCHUYLKILL COUNTY.

Ringgold Furnace.—Ringgold Iron and Coal Co., New Ringgold, Pa. Anthracite pig iron. Production in 1874, 6,000 tons. Value, \$144,000. Whole number of persons employed, 34. Wages per day: 1 superintendent, 1 founder, 2 keepers, 4 helpers, 6 fillers, 4 cindermen, 2 engineers, 1 carpenter, 1 blacksmith, 2 hoisters, 10 laborers, average \$1 70. In operation 10 months during the year.

Port Carbon Furnace and Rolling Mill.—Schuylkill Iron Co., Pottsville, Pa. Pig iron, muck bar, merchant iron, spikes, machinery and building

furnaces. Value of production in 1874, \$425,000. Whole number of persons employed, 250. Wages per day: 4 bosses, at \$4 00; 75 puddlers and helpers, at \$2 25; 95 laborers, at \$1 30; 10 boys, at \$1 30; 3 carpenters, at \$2 50; 2 pattern makers, at \$3 00; 24 machinists, at \$2 25; 5 engineers, at \$1 75; 17 moulders, at \$2 30; 2 spike makers, at \$3 00; 3 clerks, at \$3 30; 10 blacksmiths, at \$2 25.

Remarks: "Furnace, machine shop and foundry in operation during the entire year. Puddle furnace in operation 3 months. Spike mill and merchant mill in operation 2 months.

Pioneer Furnaces.—Atkins & Bro., Pottsville, Pa. Anthracite pig iron. Production in 1874, 17,013½ tons. Value, \$365,740 82. Whole number of persons employed, 112. Wages per day: 1 founder, at \$3; 1 night boss, at \$2 08; 6 keepers, at \$2 08; 10 helpers, at \$1 72; 20 fillers, at \$1 58; 6 top hoisters, at \$1 64; 4 cindermen, at \$1 65; 3 weighers, at \$1 72; 8 engineers, at \$2; 2 blacksmiths, at \$2 20; 3 carpenters, at \$2 08; 4 conductors, at \$1 42; 42 laborers, at \$1 30; 2 clerks, at \$2.

Remarks: "Two furnaces in blast during the entire year; one in blast 7 months."

Jefferson Furnace.—J. M. Kauffman & Bros., Auburn, Pa. Charcoal pig iron. Not in blast.

TIOGA COUNTY.

Mansfield Furnace.—Tioga iron works, Mansfield, Pa. Anthracite pig iron. Furnace has not been in operation since September 18, 1873.

UNION COUNTY.

Union Furnace.—Beaver, Marsh & Co., Winfield, Pa. Anthracite pig iron. Production in 1874, 5,395 tons. Sales during the year, \$119,000. Whole number of persons employed, 125. Wages per day: 1 boss, at \$4; 20 furnacemen, at \$1 50; 1 book-keeper, at \$6; 1 weighmaster, at \$1 31; 20 quarrymen, at \$1 40; 62 miners at \$2; 20 teamsters. In operation during entire year.

WESTMORELAND COUNTY.

Charlotte Furnace.—Everson, Knap & Co., Scottdale, Pa. Pig iron. Production in 1874, 13,000 tons of 2,268 pounds. Value about \$260,000. Whole number of persons employed, about 75 men: 2 bosses, 3 engineers, 20 miners, 20 laborers, 30 furnacemen, at an average of \$1 75 per day each. In operation 325 days during the year.

YORK COUNTY.

Aurora Furnace.—Wrightsville iron company, Wrightsville, Pa. Anthracite pig iron. Production in 1874, 2,550 tons. Value, \$66,300. Whole number of persons employed, 45: 3 bosses, 3 engineers, 1 carpenter, 1

blacksmith, 15 miners, 22 laborers, at an average of \$1 25 per day each. In operation $5\frac{2}{3}$ months during the year.

FORGES, ROLLING MILLS AND OTHER MANUFACTORIES OF IRON.

BERKS COUNTY.

William M'llvain & Sons, Reading, Pa. Boiler plate. Production in 1874, 2,188 tons. Value, \$175,040. Whole number of persons employed, 80. Wages: 4 heaters, at \$1 26 per ton; 4 helpers, at 56 cents per ton; 4 rollers, at 75 cents per ton; 16 catchers, at 51 cents per ton, (these men each make about $3\frac{1}{2}$ tons per day;) 8 puddlers, at \$4 25 per ton; 8 puddler's helpers, at \$1 70 per day; 4 engineers, at \$1 50 per day; 2 shinglers, at 67 cents per ton; 2 screwmen, at 67 cents per ton; 1 carpenter, at \$1 80 per day; 1 superintendent, at \$50 per month; 2 clerks, at \$800 per year; 24 laborers, at \$1 30 per day.

Pine Iron Works.—Joseph L. Bailey & Co., Pine Iron Works, Pa. Boiler plate and muck bars. Production in 1874, 1,976 tons of boiler plate, value, \$247,580, and 585 of muck bar, value, \$25,155. Whole number of persons employed, 40, during first 9 months of 1874, and 70 during balance of year. Wages per day: 42 boiler plate workers, at an average of \$2 84, working two-thirds of the time; 28 muck bar workers, at \$2 50, working full time during 3 months mill was in operation.

Reading Bolt and Nut Works.—J. H. Sternberger, Reading, Pa. Bolt and nut iron, &c. Production in 1874, 931 tons nut and bolt iron; value, \$61,919 81; 632 tons bolts, nuts and lag screws; value, \$100,772 54. Whole number of persons employed, 75 to 100. Wages per day: 1 general foreman, at \$5 00; 1 assistant foreman, at \$3 00, and 1 at \$2 50; 1 roller, at \$4 00; 2 roughers, at \$2 50; 1 heater, at \$3 50; 1 helper, at \$1 75; 1 catcher, at \$1 50; 3 boys at rolls, at 75 cents; 1 engineer, at \$2 00; 10 machinists, at \$2 00; 6 nut makers, at \$2 50; 3 bolt makers, at \$1 75; 3 helpers, (boys,) at \$1 00; 2 blacksmiths, at \$2 25; 2 blacksmiths' helpers, at \$1 35; 2 shearsmen, 1 at \$1 60, and 1 at \$1 50; 20 boys in bolt and nut works, at 75 cents; 2 pattern makers, 1 at \$2 25, and 1 at \$1 50; 3 machinist apprentices, at 75 cents; 2 packers, at \$1 50; 4 laborers, at \$1 25; 1 carpenter, at \$1 75; 1 clerk, at \$4 00.

E. & G. Brooke, Birdsboro', Pa. Cut nails and muck bars. Production in 1874, 117,000 kegs nails, valued at \$400,000; 453 tons muck bars, valued at \$20,000. Whole number of persons employed, 248. Wages per day: 24 puddlers, at \$3 35; 24 puddler's helpers, at \$1 56; 2 squeezermen, at \$1 55; 2 rollers, at \$3 05; 2 catchers, at \$2 26; 2 hookups, at \$1 75; 2

dragouts, at \$1 25; 2 cutters and weighers, at \$2 56; 2 stockers, at \$2 07; 1 superintendent of puddling mill, at \$5 55; 2 heaters, at \$4 02; 2 heater's helpers, at \$2 01; 2 carpenters, at \$2; 9 machinists, at \$1 70; 8 blacksmiths, at \$1 50; 4 engineers, at \$1 78; 13 coopers, at \$2 40; 1 bricklayer, at \$2 85; 19 boss nailers, at \$5 40; 76 nail feeders, at \$1 35; 4 nail packers, at \$3 25; 3 slitters, at \$3 03; 2 nailer's helpers, at \$2 64; 1 superintendent of nail factory, at \$5; 15 laborers, at \$1 20; 4 heaters, at \$4 30; 4 heater's helpers at \$2 15; 3 rollers and finishers, at \$5; 2 catchers, at \$3 55; 2 hookups, at \$1 87; 2 pile ups, at \$2 05; 3 pushunders, at \$1 47; 4 pilers, at \$1. (The above men worked 308 days during the year.) 1 watchman, 365 days, at \$1 50. Remarks: "The men work ten hours per day, excepting holidays."

Keystone Iron Works.—Craig & Koch, Reading, Pa. Plate and bar iron, and puddle bars. Production in 1874, 800 tons of plate iron, value, \$64,000; 150 tons of bar iron, value, \$9,267; 1,300 tons of puddle bars, value, \$52,000; total, \$125,267. Whole number of persons employed, 87. Wages per day: 2 engineers, \$2; 1 boss, at \$3; 4 heaters, at \$3 25; 10 puddlers, at \$3 50; 10 helpers, at \$1 87; 4 rollers, at \$2 25; 4 catchers, at \$1 87; 1 screw man, at \$3 50; 1 blacksmith, at \$2; 1 carpenter, at \$2; 4 laborers, (boys,) at \$1; 45 laborers, at \$2. In operation during 6 months of the year. Remarks: "Amount paid for labor during the year 1874, \$29,145 51."

BLAIR COUNTY.

Maria Forges.—Gardner & M'Lanaghan, assignees of E. Hammond, Hollidaysburg, Pa. No. 1, charcoal blooms. Production in 1874, 420 tons. Value, \$30,000. Whole number of persons employed, 10 men. Wages per day: 4 foremen, at \$2 00; 1 run-out-man, at \$2 00; 1 helper, at 75 cents; 1 blacksmith, at \$1 25; 1 teamster, at \$1 15; 1 laborer, at \$1 00; 1 boss, at \$200. In operation 11 months during year. Remarks: "The seeming small amount of labor required in the production of the above, was caused by the charcoal being already on hand and stocked in the coal house, and no excess of stock for the ensuing year having been accumulated by us, as we were simply working up the stock on hand."

Franklin Forges.—George Fay, Hollidayburg, Pa. Blooms. Quantity not stated. Value, \$10,000. Whole number of persons employed, 3. Wages per day; 2 foremen and 1 run-out-man, at \$1 75 each. In operation during 9 months of the year.

Portage Iron Works.—John Musselman, Duncansville, Pa. Bar iron, nails and spikes. Production in 1874, 30,000 kegs of nails. Value, \$97,500. Whole number of persons employed, 86. Wages per day, 1 storekeeper, \$2 50; 3 clerks, at \$2 00; 2 foremen at \$2 00; 2 engineers at

\$1 75; 1 fireman at \$1 40; 1 machinist at \$1 75; blacksmith and helper, at \$3 40; 8 nailers, at \$3 30; 24 nail feeders, at \$1 10; 7 puddlers, at \$3 50; 8 puddler helpers, at \$1 75; 1 squeezerman, at \$2 45; 2 shear-men, at \$1 90, 3 heaters at \$3 37; 3 rollers, at \$3 37; 4 drag-outs (boys,) at 80 cents; 14 laborers at \$1 25. Remarks; "Of the above employees, the storekeeper, clerks and foremen were employed 12 months, and the balance during 9 months of the year.

Cove Forges.—John Royer, Williamsburg, Pa. Blooms. Production in 1874, 400 tons. Value, \$70 00 per ton, amounting to \$28,000. Whole number of persons employed, 40. Wages per day: 9 forgemmen at \$1 95 for 10 months; 4 teamsters, at \$1 06 for 12 moths; 4 colliers at \$1 15 for 6 months; 1 carpenter, at \$1 08; 1 manager at \$2 50; 1 clerk at \$1 25; 20 laborers, at \$1 00. Remarks: "Carpenter, manager, clerk and laborers employed during the entire year.

Hollidaysburg Iron Works.—Hollidaysburg Iron and Nail Co., Hollidaysburg, Pa. Boiler, sheet, bar and angle iron, flat and small T rails, nails and spikes. Production, 15,493 kegs nails, value \$46,479. 862 tons plates and sheets, value, \$68,960. 1,657 tons bars, &c., value, \$87,092 50. Total value of productions, \$202,531 50. Whole number of persons employed, 157. Wages per day: 25 puddlers, at \$3 75; 9 puddler's helpers, at \$1 87½; 6 heaters, at \$3 90; 6 heaters' helpers, at \$1 90; 9 rollers, at \$3 50; 6 catchers at \$2 25, 4 nailers, at \$4 00; 12 nail feeders, at \$1 25; 5 engineers at \$1 90; 55 laborers, at \$1 35; 20 boys, at \$1 35. In operation during two-thirds of the year. Remarks: "This report includes our own rolling mill and the Juniata Iron Manufacturing Co.'s mill and nail factory. The latter having been leased by us for five years, commencing April 1st, 1871, and ending April 1st, 1876. The report is for the year ending Nov. 1st, 1875."

CAMBERIA COUNTY.

Cambria Iron Works.—Cambria Iron and Steel Co., Johnstown, Pa. Iron and steel railway bars. Production in 1874, 62,325 tons. Value, \$3,655,-390. Whole number of persons employed, 3,190. Wages per day; 220 ore miners, at \$1 60; 300 coal miners, at \$1 50; 60 coke burners, at \$1 45; 110 furnacemen at \$1 50; 400 puddlers, at \$3 00; 50 heaters at \$3 50; 175 teamsters, at \$1 25; 300 steel mill hands, at \$2 00; 100 machinists, at \$2 00; 30 carpenters, at \$1 75; 60 foundrymen, at \$1 75; 50 blacksmiths, at \$1 75; 20 boilermakers, at \$2 00; 40 brickmasons, at \$2 00; 25 stonemasons, at \$1 75; 10 painters, at \$1 75; 20 wagonmakers, at \$1 60; 270 laborers at \$1 10; 950 rolling mill hands, at \$1 75. In operation 10 months during the year.

CENTRE COUNTY.

Valentine & Co., Forges, Bellefonte, Pa.—Charcoal blooms and boiler slabs. Production in 1874, 2,000 tons. Value at works, \$150,000. Whole number of persons employed, 52 men. Wages per day: 24 forgemen, at \$2 00; 1 engineer, at \$2 50; 1 helper, at \$1 25; 2 hammermen, at \$2 50; 2 stockers, at \$2 00; 1 coal stocker, at \$1 50; 7 wood choppers, at \$1 60; 8 colliers, at \$1 50; 4 teamsters, at \$1 50; 1 manager, at \$5 00; 1 clerk, at \$1 50. Remarks: "To produce above blooms, converted product of our own furnace, 3,000 tons pigs, estimated worth \$100,000, as per furnace statement. The actual number of wood cutters and colliers is double the number stated, each being employed during half the year."

Valentines & Co.'s Rolling Mill, Bellefonte, Pa.—Scythe and shovel iron, tops and bottoms for boiler plate, wire billets, edge tool iron, &c., from C. C. Blooms. Production in 1874, 2,000 tons of 2,240 lbs. Value at works, \$180,000. Whole number of persons employed, 17. Wages per day: 1 master roller, at \$3 00; 1 heater, at \$3 50; 1 roller, at \$1 60; 1 catcher, at \$1 75; 1 heater's helper, at \$1 50; 1 heaverup, at \$1 10; 3 straighteners, at \$1 10; 1 car driver, at \$2 00; 2 blacksmiths, at \$1 80; 3 extra laborers, at \$1 25; 1 superintendent, at \$5 00; 1 clerk, at \$1 00. In operation 50 weeks during the year. Remarks: "We roll in mill only the blooms made at our own forge; valued, as per forge statement, at \$150,000. Furnace, forge and rolling mill are all on the same ground, and all our business is done at one office, with one set of books, and we have divided each branch as nearly as possible."

CHESTER COUNTY.

Thorndale Iron Works.—Wm. L. Bailey & Co., Thorndale, Pa. Boiler and plate iron. Production in 1874, 4,881,219 lbs. Value, \$196,729 36. Whole number of persons employed, average about 67. Wages, per day, 1 foreman, at \$6 00; 1 boss puddler, at \$10 00; 4 heaters, at \$4 00; 8 puddlers, at \$3 00; 41 men, at \$2 00; 10 men, at \$1 50; 2 boys, at 83 cents. In operation 250 days during the year.

Valley Iron Works.—C. E. Pennock & Co., Coatesville, Pa. Boiler and flue iron. Production in 1874, 4,905 tons. Value, \$367,875. Whole number of persons employed, 150. Wages per day—all labor is paid by the ton, at from 63 cents to \$1 26 in the rolling mill and \$5 75 per ton to puddlers. In operation during the entire year, except when undergoing repairs.

Lukens Rolling Mill.—Huston & Penrose, Coatesville, Pa. Boiler, plate, tank and boat iron. Production in 1874, 3,324 tons finished iron. Value, \$291,878. Average number of persons employed, 125. Wages not given.

Parkesburg Iron Works.—Horace A. Beale, Parkesburg, Pa. Tube and pipe skelp, and plate iron. Production in 1874, 2,122,330 pounds. Value, \$111,581 30. Whole number of persons employed, 41. Wages per day: 2 engineers, at \$2 50; 2 foremen, at \$4 50; 2 heaters, at \$4 50; 2 rollers, at \$2 80; 2 catchers, 2 straighteners, 2 levermen, 2 pilers and 2 helpers, at \$2 37; 1 blacksmith, at \$2 50; 4 puddlers, at \$3 10; 4 puddler's helpers, at \$1 90; 2 shinglers, at \$2; 4 forgemen, at \$2 60; 4 forge under hands, at \$2 40; 4 stockers, at \$1 35; engineers, foremen, heaters, rollers, catchers, straighteners, levermen, pilers, and helpers, each 210 days; puddlers, puddler's helpers and shinglers, 180 days; forgemen and under hands, 60 days; stockers, 120 days.

Remarks: "The average daily wages may not be absolutely correct. All of our work, except engineers and laborers, is done by *the ton*, and we have assumed a day's work to be so much, hence the average, both of number of days and rate of wages. The time actually made covers a longer period of time than indicated, because all the days we worked were not *full days*, and also that our basis is made on the supposition that everything was working to the best advantage. Had we divided the days actually run into amount of wages paid, we would show a very much lower daily average."

Phoenix Iron Works.—Phoenix Iron company, Phoenixville, Pa. All kinds of shaped iron and engineering work. Production in 1874, 18,500 tons. Value, \$2,250,000. Whole number of persons employed, 1,290. Wages per day: 130 puddlers, at \$3; 40 furnace hands, at \$1 60; 395 mill hands, at \$1 32; 110 boys, at \$1 32; 20 moulders and 3 apprentices, at \$1 90; 74 machinists and 8 apprentices, at \$1 90; 14 boiler makers, at \$1 60; 33 carpenters at \$1 90; 10 bricklayers, at \$2 57; 360 laborers, at \$1 15; 55 miners, at \$1 45. Average time of men employed, 243 days.

French Creek Forge.—B. F. Morrett, St. Peters, Pa. Charcoal blooms. Production in 1874, 600 tons. Value, \$48,000. Whole number of persons employed, 14. Wages per day: clerk, at \$2 25; 1 run-out man, at \$2 75; 1 helper, at \$1 65; 6 forgemen, at \$2 15; 1 coal-stocker, at \$1 50; 2 teamsters, at \$1 50; 2 colliers, at \$3 75. In operation 293 days during the year.

COLUMBIA COUNTY

Mainville Forge.—C. E. Pennock & Co, Mainville, Pa. Charcoal blooms. Production in 1874, 500 tons. Value, \$45,000. Whole number of persons employed, 25. Wages per day: 1 superintendent, at \$3 00, full time; 2 run-out men, at \$2 00; 6 forgemen, at \$2 00; 1 coal stocker, at \$1 25; 2 teamsters, at \$1 25; 2 laborers, at \$1 00; 3 colliers, at \$1 50; 8 wood choppers, at \$1 25. Forge in operation during 9 months of the year. Colliers and wood choppers employed 6 months.

CUMBERLAND COUNTY.

Liberty Forge.—Mamma & Boyer, Lisburn, Pa. Blooms and wire billets. Production in 1874, 450 tons. Value not given. Whole number of persons employed, 16. Wages per day: 1 foreman, at \$1 75; 2 teamsters, at \$1 25; 1 run-out man, at \$2 00; 2 laborers, at \$1 00; 6 forgemen, at \$2 00; 4 colliers, \$1 35. In operation during 10 months of the year.

Letort Forge.—Bricker & Jacobs, Carlisle, Pa. Hammered iron. Production in 1874, 36 tons gross. Value, \$3,600. Whole number of persons employed, 6. Wages per day: 1 boss, at \$2 00; 1 hammerman, at \$3 00; 2 helpers, at \$1 50; 1 laborer, \$1 25. Remarks: "We only worked, in 1874, 3 months, and up to this time in 1875, 2 months. Prior to the panic of 1873 we worked, on an average, 11 months in the year."

Harrisburg Nail Works.—Estate of James M'Cormick, Fairview, Pa. Cut nails and spikes. Production in 1874, 125,000 kegs. Value not given. Whole number of persons employed, 400. Wages per day: 2 foremen, at \$5 00; 2 machinists, at \$1 62; 2 carpenters, at \$2 00; 40 puddlers, at \$3 25; 40 helpers, at \$1 75; 4 heaters, at \$3 75; 4 heaters' helpers, at \$1 87; 51 rolling mill hands, at \$2 50; 27 nailers, at \$3 00; 73 feeders, at \$1 25; 11 coopers, at \$1 45; 2 clerks, at \$2 00; 142 laborers, at \$1 25.

DAUPHIN COUNTY.

Lochiel Rolling Mill.—Lochiel Rolling Mill Co., Harrisburg, Pa. Railway iron, merchant iron, splice bars and pig iron. Production in 1874, 15,480 tons railway iron, 1,112 tons merchant iron and spliced bars, and 7,682 tons pig iron. Total value, \$1,200,000. Whole number of persons employed, about 400. Wages per day: 9 mill managers, bosses, founder, time keeper, &c., at \$5 00; 3 clerks, at \$2 50; 3 machinists at \$3 15; 2 carpenters, at \$1 95; 3 blacksmiths at \$3 00; 3 brick masons, at \$3 75; 34 puddlers, at \$2 50; 14 puddler's helpers, at \$1 70; 22 heaters, (of all kinds) at \$3 50; 20 heater's helpers, at \$1 80; 100 skilled workers in iron, at \$2 20; 85 ordinary laborers, at \$1 35; 30 boys, at 65 cents. In operation 10 months of 25 days each during the year. Remarks: "The iron trade being very much depressed in the year 1874, some portions of the mill were at times run with a limited force, while other portions were temporarily suspended. During the entire year but few departments of the mill were at any time run to their full capacity."

Paxton Rolling Mill.—M'Cormick & Co., Harrisburg, Pa. Boiler plate and tank iron. Production in 1874, 4,500 tons plate iron. Value, \$292,000. Whole number of persons employed, 200. Wages per day: 2 foremen, at \$3 00; 2 bosses at \$2 30; 1 machinist at \$3 00; 4 engineers, at \$1 75; 2 blacksmiths, at \$2 15; 22 puddlers at \$4 00; 22 puddler's help-

ers, at \$2 00; 13 heaters, at \$4 75; 13 heater's helpers, at \$2 38; 121 laborers, at \$1 40. In operation during the year 7½ months.

Harrisburg Car Works.—Harrisburg Car Manufacturing Co., Harrisburg, Pa. Freight cars of all descriptions. Production in 1874, valued at \$655,089 08. Whole number of persons employed, about 325. Wages per day: 8 foremen, at \$2 00; 15 machinists, at \$1 80; 77 carpenters at \$1 60; 30 moulders at \$1 80; 28 blacksmiths, at \$1 80; 7 painters, at \$1 60; 147 laborers, at \$1 30; 10 apprentices, at \$1 80. In operation during 10 months of the year.

Harrisburg Foundry and Machine Co.—Harrisburg, Pa. General machine work. Production in 1874, valued at about \$40,000. Remarks: "From 5 to 100 men are irregularly employed—works about closing."

Franklin Machine Works.—W. S. Finney, agent, Harrisburg, Pa. Agricultural implements and general machine repairing. Production in 1874, valued at \$20,000. Whole number of persons employed, 10. Wages per day: 6 machinists and 2 apprentices, averaged at \$1 80; 2 carpenters, at \$1 80. In operation 300 days during the year.

ERIE COUNTY.

Erie Forge.—Erie Forge Co., Erie, Pa. Hammered car and engine axles, shafting cranks, &c. Production in 1874, 480,671 lbs. axles and 548,985 lbs. shafting, &c. Total value, \$34,010 68. Whole number of persons employed, 16. Wages per day—1 manager; 1 hammerman, at \$4 50; 1 heater, at \$2 50; 8 laborers, at \$1 50; 4 boys, at 60 cents; 1 clerk, at \$1 75. In operation 9½ months during the year.

HUNTINGDON COUNTY.

Juniata Iron Works.—S. & B. R. Hatfield, Alexandria, Pa. No. 1 charcoal and puddled blooms. Production in 1874, 800 tons charcoal blooms, valued at \$52,000, and 600 tons puddled blooms, valued at \$27,000; total value, \$79,000. Whole number of persons employed, about 49. Wages per day—1 manager, 12 mo., at \$2 89; 1 clerk, 12 mo., at \$1 66; 1 store keeper, 12 mo., at \$1 00; 6 foremen, 10 mo., \$3 00; 2 refiners, 10 mo., at \$4 90; 4 puddlers, 10 mo., at \$2 50; 2 stockers, 10 mo., at \$1 50; 2 blacksmiths, 12 mo., at \$2 30; 5 teamsters, 10 mo., at \$1 15; 1 carter, 10 mo., at 75 cents; 1 carpenter, 10 mo., \$1 50; 4 laborers, 10 mo., \$1 12; 4 colliers, 6 mo., at \$1 25; 8 wood choppers, 6 mo., at \$1 00. Remarks: "In the statement of forge and puddling manufacture only one-half of our capacity has been at work, owing to the depressed times."

NOTE.—The Messrs. Hatfield are also miners and manufacturers of fire-clay. They produced, in 1874, 2,100 tons, valued at \$9,450. They have also transmitted statistics of their farm products and grist and saw mills, as follows: 1,500 bushels corn, at 65 cents; 860 bushels oats, at 50 cents;

250 bushels potatoes, at 60 cents; 987 bushels wheat, at \$1 20; 100 tons hay, at \$15 00. Total value of farm productions, \$4,242 40. Grist mill manufactured 1,750 barrels flour, at \$6 00 per barrel, and 750 bushels mixed grain, for feed, at 60 cents per bushel. Total value, \$15,000. Saw mill, annual product, 18,500 feet oak lumber, at \$20 00 per M., and 21,500 feet pine, at \$16 00 per M. Total value, \$714 00.

Juniala Forge.—John R. Hunter & Co., Petersburg, Pa. Charcoal blooms. Production in 1874, 400 tons. Value, \$20,000. Whole number of persons employed, 8. Wages per day—1 wagoner, at \$1 53; 1 carter, at \$1 53; 4 forgemen, at \$1 75; 1 miller, at \$2 00; 1 laborer, at \$1 12. Remarks: "The above includes employees in grist mill, the annual product of which is \$3,000."

LANCASTER COUNTY.

Chickies Rolling Mill.—Becker & Reinhold, Chickies, Pa. Muck bar and bar iron. Production in 1874, 1,850 tons. Value, \$92,500. Whole number of persons employed, 40. Wages per day: 1 foreman, at \$3; 10 puddlers, at \$3; 10 puddler's helpers, at \$1 50; 2 engineers, at \$1 50; 2 rollers, at \$1 50; 2 shinglers, at \$2; 1 blacksmith, at \$2; 2 catchers, (boys,) at 80 cents; 2 dragouts, (boys,) at 60 cents; 8 laborers, at \$1 20. In operation during 8 months of the year.

LEBANON COUNTY.

Lebanon Forge.—Van de Sande & Capp, Lebanon, Pa. Bar iron. Production in 1874, 587 tons. Value, \$42,510. Whole number of persons employed, 28. Wages per day: 1 finishing roller, at \$6 75; 2 roughing rollers, at \$2 50; 1 catcher, at \$1 25; 1 hookup, (boy,) at 75 cents; 2 straighteners, at 75 cents; 1 scrap roller, at \$3; 1 catcher, at \$2; 1 hookup, at \$1 25; 1 dragout, at \$1 25; 5 pilers, at \$1; 4 laborers, at \$1 50; 2 engineers, at \$2 25; 1 heater, at \$4 25; 1 heater, at \$5; 1 heater's helper, at \$2 25; 1 heater's helper, at \$1 75; 1 blacksmith, at \$1 75; 1 blacksmith's helper, at \$1 50. In operation 117 days during the year.

Union Forge.—Union Forge company, Union Forge, Pa. Anthracite and charcoal blooms. Production in 1874, 650 tons. Value, \$42,250. Whole number of persons employed, 25. Wages per day: 8 forgemen, at \$2 07; 2 runouts, at \$1 29; 1 coal stocker, at \$1 25; 14 laborers, at \$1. In operation during 9 months of the year.

MERCER COUNTY.

Sharon Rolling Mills.—Westerman Iron company, Sharon, Pa. Bar, hoop, and sheet iron, nails, bolts and railroad spikes, small T rails and lightning rods. Production in 1874, 12,637 tons, iron and nails; value not given. Whole number of persons employed, 450. Wages per day: 7 car-

penters, at \$2 70; 3 machinists, at \$2 90; 4 blacksmiths, at \$3; 275 laborers, at \$1 50; 161 other employees, comprising nailers, feeders, rollers, heaters, puddlers and helpers, at an average of \$2 42. In operation during the entire year.

MONTGOMERY COUNTY.

Schuylkill Iron Works.—Alan, Wood & Co., Conshocken, Pa. Sheet and plate iron. Production in 1874, 8,389 tons. Value, \$671,120. Whole number of persons employed, 370. Wages per day: 10 superintendents, clerks, and foremen, at \$3 50; 20 machinists and engineers, at \$2 50; 3 carpenters, at \$3 00; 240 skilled workers in sheet and plate iron, at \$2 25; 87 laborers, at \$1 60; 10 boys, at 60 cents. In operation 10 months during the year. Remarks: "We have lately built a large rolling mill, which will increase our capacity to 15,000 tons per annum, and will employ a total of 500 hands; but owing to depressed condition of business have not had it fully in operation."

Potts Grove Iron Works.—Potts Brothers, Pottstown, Pa. Boiler plate, pipe iron and puddled bars. Production in 1874, 1,473 tons. Value, \$96,000. Whole number of persons employed, 41. Average wages paid employees per day, \$1 11. In operation 91 days during the year.

Conshohocken, Pennsylvania and Corliss Iron Works.—J. Wood & Bros., Conshohocken, Pa. Boiler, sheet, flue, bar and muck iron. Production in 1874, 1,500 tons sheet, 2,500 tons boiler and flue, 5,000 tons muck bars, and 3,500 tons bar iron. Selling value of product, \$350,000. Whole number of persons employed, 170. Wages per day: 2 foremen, at \$4 50; 2 machinists, at \$2 75; 4 engineers, at \$2 37; 24 puddlers, at \$3 50; 24 puddlers' helpers, at \$2 00; 2 bar iron feeders, at \$2 75; 2 bar iron rollers, at \$2 75; 8 rollers' helpers, at \$2 00; 3 flue heaters, at \$4 00; 3 flue rollers, at \$4 00; 12 flue helpers, at \$2 25; 2 flue iron trimmers, at \$3 50; 3 trimmers' helpers, at \$2 00; 2 sheet iron trimmers, at \$1 80; 6 helpers, at \$1 50; 7 sheet iron rollers, at \$2 50; 21 helpers, at \$1 75; 2 blacksmiths, at \$1 75; 2 muck bar rollers, at \$2 33; 8 helpers, at \$1 60; 3 carters and teamsters, at \$1 60; 20 common laborers, at \$1 40; 5 extra laborers, at \$1 60; 3 clerks, weighers, &c., at \$2 50. Time of employees, from 4½ to 6 days per week.

MONTGOMERY COUNTY.

Co-operative Iron and Steel Works, Danville, Pa.—Railroad iron and muck bars. Production in 1874, 3,500 tons. Value, \$175,000. Whole number of persons employed, about 100. Average wages paid employees, \$1 50 per day. In operation six months during the year.

Pennsylvania Iron Works.—Waterman & Beaver, Danville, Pa. Railroad iron. Production in 1874, 16,592 tons. Value, \$994,116. Whole number

of persons employed, 1,056. Wages per day, 12 bosses and foreman, at \$3 50; 25 heaters, at \$3 69; 35 heaters' helpers, at \$1 69; 8 buggy men, at \$1 72; 19 rail rollers, at \$3 60; 41 stockers, at \$1 36; 31 rail finishers, at \$2 18; 16 engineers, at \$1 65; 9 machinists, at \$1 84; 10 moulders, at \$1 97; 12 carpenters, at \$1 94; 2 boiler makers, at \$2 20; 8 blacksmiths, at \$1 63; 2 masons, at \$1 94; 98 laborers, at \$1 34; 192 unskilled laborers, at \$1 12; 114 puddlers, at \$2 69; 114 puddlers' helpers, at \$1 52; 25 puddle rollers, at \$1 52; 94 boys, (hookers, catchers, &c.,) at 67 cents; 6 apprentices, at 98 cents; 183 ore miners, at \$1 40. In operation 7 months during the year.

Danville Iron Works.—Danville Iron Company, Danville, Pa. Railroad iron. Production in 1874, 7,000 tons. Value not given. Whole number of persons employed, 100. Wages per day, 8 heaters, at \$4; 8 heaters' helpers, at \$2; 13 rollers, &c., at \$3; 2 bosses, at \$6; 1 machintst, at \$1 75; 68 laborers, at \$1 30; 4 boys, at \$1 30.

PERRY COUNTY.

Seidel's Forge.—J. B. Seidel & Son, Marysville, Pa. Charcoal blooms. Production in 1874, 1,009 tons. Value, \$60,000. Whole number of persons employed, 40. Wages per day—8 forgemen, at \$2 50; 1 hammerman, at \$2 50; 1 runoutman, at \$3 50; 1 helper, at \$1 40; 2 farmers, at \$1 50; 1 teamster, at \$1 40; 1 blacksmith, at \$1 75; 1 carpenter, at \$1 75; 2 colliers, at \$2 00; 12 wood choppers, at \$1 25; 10 laborers, at \$1 40. Remarks: "Forgemen, hammerman, runoutman and helper worked 275 days; farmers, teamster, blacksmith and carpenter, 300 days; colliers and laborers, 250 days; wood choppers, 200 days.

Duncannon Iron Company, Duncannon, Pa.—Bar iron and nails. Production in 1874, 70,000 kegs nails, valued at \$245,000, and 1,800 tons bar iron, valued at \$111,000; total value of productions, \$356,000. Whole number of persons employed, 220. Wages per day—2 foremen, at \$3 00; 2 machinists, at \$2 00; 2 carpenters, at \$2 00; 50 laborers, at \$1 25; 20 puddlers, at \$3 00; 20 puddler's helpers, at \$1 50; 6 heaters, at \$3 00; 6 heater's helpers, at \$1 50; 3 rollers, at \$4 00; 11 roller's helpers, at \$2 00; 20 boys in mill, at 70 cents; 24 nailers, at \$3 00; 46 nailer's boys, at \$1 25; 4 blacksmiths, at \$2 25; 4 blacksmith's helpers, at \$1 30. Mill in operation full time and nail works nine months during the year.

Cove Forge.—Wm. M'Ilvain & Sons, Duncannon, Pa. Boiler plate blooms. Production in 1874, 550 tons. Value, \$44,000. Whole number of persons employed, 40. Wages per day: 1 boss refiner, at \$5 00; 10 refiners, at \$3 00; 2 engineers and smiths, at \$2 00; 2 stockers and carpenters, at \$2 00; 5 colliers, at \$2 00; 10 woodchoppers, at 60 cents per

cord; 5 farm hands, at \$1 26; 5 laborers, at \$1 26; 1 manager, at \$3 00; 1 assistant manager, at \$1 75. In operation 6 months during the year. Remarks: "The number of men would be increased if we run full time, particularly the woodchoppers and colliers. Forgemen work by the ton. We paid last year and on up to this time \$6 25 per ton and 10 per cent off. We give all employees a house and lot without charge for rent."

SCHUYLKILL COUNTY.

Pottsville Rolling Mills.—Atkins Brothers, Pottsville, Pa. Railroad iron. Production in 1874, 12,852 tons. Value, \$767,193 41. Whole number of persons employed, about 500. Wages per day: 6 bosses, at \$3 29; 3 carpenters, at \$1 95; 5 blacksmiths, at \$2 05; 10 engineers, at \$2 06; 13 mechanics, at \$2 00; 1 roll turner, at \$4 25; 64 puddlers at \$3 00; 64 puddler's helpers, at \$1 50; 16 rail-heaters, at \$4 00; 16 heater's helpers, at \$2 00; 34 rail rollers, at \$3 50; 18 puddle rollers, at \$2 75; 20 boys at buggy at hot shears, at \$1 00; 8 hookers, (boys) at 81 cents; 5 teamsters, at \$1 50; 4 firemen, at \$1 70; 4 weighers, at \$1 33; 2 book-keepers, at \$2 75; 2 office boys at 50 cents; 1 superintendent, at \$8 00; 156 laborers, at \$1 35; 48 boys, 75 cents. In operation 9 months during the year.

Rolling Mill.—Weissinger & Medlar, Schuylkill Haven, Pa. Bar iron and rails. Production in 1874, 1,800 tons. Value, \$108,000. Whole number of persons employed, 35 men and 10 boys. Average wages of all employees, \$1 50 per day. In operation 10 months during the year.

Carter, Allen & Co., Tamaqua, Pa. Castings and machinery for furnaces, collieries, rolling mills, powder and grist mills, feed, steam and Cornish pumps, ore washing machinery, coal and slate separators, boilers of all kinds, &c., &c. Value of productions in 1874, \$150,000. Whole number of persons employed, 106. Wages per day, 1 superintendent, at \$10; 1 foundry foreman, at \$4; 1 machine shop foreman, at \$3 50; 1 pattern shop foreman, at \$3; 1 book-keeper, at \$5; 2 draughtsmen, at \$4; 14 moulders, at \$2 25; 4 apprentices, at 90 cents; 38 machinists, at \$2 40; 10 apprentices, at 90 cents; 5 blacksmiths, at \$2 50; 5 blacksmiths' helpers, at \$1 50; 5 boiler makers, at \$2 25; 2 apprentices, at 90 cents; 4 carpenters, at \$2 25; 6 pattern makers, at \$2 50; 3 apprentices, at 90 cents; 1 watchman, at \$1 80; 1 teamster, at \$1 80; 1 engineer, at \$2 25. In operation 300 days during the year.

Remarks: "Owing to extreme dullness of times, the average number of men and boys for 1874, was very small. Our capacity is fully 250 when working full force. We append dimensions of our several shops: Machine shop, No. 1, 66×225 feet; machine shop, No. 2, 55×155 feet; fitting and erecting shop, 66×150 feet; old foundry, 80×100 feet; new foundry, 125×

55 feet; pattern shop, 46×130 feet; pattern store-house, No. 1, two stories, 43×210 feet; pattern store-house, No. 2, 40×64 feet; blacksmith shop, 40×102 feet; boiler shop, 100×120 feet; office, 25×45 feet."

TIOGA COUNTY.

T. J. Moors, Blossburg, Pa. Railroad, mining and farming utensils. Value of productions in 1874, \$6,300. Whole number of persons employed, 5. Average wages paid employees per day, \$2. In operation during the entire year.

WESTMORELAND COUNTY.

Everson, M' Crum & Co., Scottdale, Pa.—Sheet iron and muck bars. Production in 1874, 3,800 tons muck iron, and 2,500 tons sheet iron. Total value, \$350,000. Whole number of persons employed, 129. Wages per day: 3 bosses and clerks, at \$2 00; 24 puddlers, at \$3 50; 24 puddlers' helpers, at \$2 20; 12 muck rollers and helpers, at \$2 00; 6 heaters and helpers, at \$2 50; 3 engineers and machinists, at \$2 25; 1 carpenter, at \$2 25; 28 sheet rollers and helpers, at \$3 00; 6 shearmen and helpers, at \$2 00; 2 metal breakers, at \$2 00; 2 ash wheelers, at \$1 75; 2 blacksmiths and helpers, at \$2 00; 2 bundlers, at \$2 00; 2 firemen, at \$1 90; 2 moulders and helpers, at \$2 00; 10 laborers, at \$1 35. In operation 250 days during the year.

IRON AND STEEL INDUSTRIES.

FROM THE REPORT OF THE UNITED STATES BUREAU OF STATISTICS.

The following interesting article, prepared by James M. Swank, Esq., secretary of the American Iron and Steel Association, exhibits the origin and development of the iron and steel industries in the United States:

FORGES AND BLOOMARIES.

The first iron made in America was forged at a bloomery of the Virginia company, in 1621, on the James river, twelve miles below the present site of Richmond. The Indians destroyed the forge in 1622. In 1631 the people of Massachusetts Bay built an iron mill at Lynn; in 1644, a blast furnace at Hammersmith; in 1652, a furnace and forge at Raynham, (Taunton;) and other iron works followed in succeeding years, until in 1715 there were many furnaces and forges in Maryland, Virginia and Massachusetts. At some of these forges the ore was converted into bar iron by hammering, and all sorts of merchantable shapes were made, while at others the bar was hammered from the pig. Maryland hammered bar iron was exported to England from 1732 to the Revolution, although in 1750 England endeavored to prohibit the production of bar iron, as a common nuisance in America. The Revolution stimulated the production of hammered iron, and forges sprung into existence in many parts of the colonies, but principally in Pennsylvania. Slitting mills, for slitting hammered plate into nail rods, became quite numerous. After the Revolution great changes took place. The puddling furnace was invented by Cort, a native of England, in 1783 and 1784, and he also introduced the use of rolls. From 1790 to 1810 rolling mills were gradually erected in this country to take the place of the forges, and at the present time only a very few forges in Virginia, North Carolina and Tennessee make hammered bar iron in small quantities, while the few forges and bloomaries making blooms from ore are found in New York and North Carolina, using the Catalan forge. Many forges, making blooms for boiler plate from charcoal pig iron, still exist in Pennsylvania. The following table shows the production of blooms *from ore* during late years:

Years	Net tons.	Years.	Net tons.
1865.....	63,977	1870.....	62,259
1866.....	73,555	1871.....	63,000
1867.....	73,073	1872.....	58,000
1868.....	75,200	1873.....	62,564
1869.....	69,500	1874, (about).....	50,000

PIG IRON.

The first furnace in the United States, of which we have any knowledge, is that built by a London company, represented by John Winthrop, Jr., at Hammersmith, Mass., in 1644. In Plymouth county, Massachusetts, Lambert Despard built a furnace in 1702 at the outlet of Mattakeeset Pond. In 1715 there were many furnaces in the colonies, all of which used charcoal for fuel. In 1717 pig iron was exported to England. Most of these furnaces made castings, such as iron pots, direct from the furnace, as they still do in some parts of North Carolina and Tennessee. Coke was first used in the blast furnace by F. H. Oliphant, of Fayette county, Pennsylvania, in 1836, and anthracite coal at Mauch Chunk, Carbon county, Pennsylvania, by Baughman, Giteau & Co., in July, 1839, though Mr. Lyman, at Pottsville, first succeeded in keeping a furnace in blast for three months on anthracite, running from October, 1839, to January, 1840. The Mauch Chunk furnace was small, being $21\frac{1}{2}$ feet high and $5\frac{1}{2}$ feet across the bosh, while the Pottsville furnace was 35 feet by $8\frac{3}{4}$ feet. In August, 1846, the raw bituminous coal was first used in smelting iron at Lowellville, Mahoning county, Ohio, in a furnace specially built for raw coal, though, in 1845, a charcoal furnace in Mercer county, Pennsylvania, (Clay furnace,) had during a scarcity of fuel, run a short time on raw coal alone. In 1810 there were 153 furnaces, all charcoal, which made in that year 54,000 net tons of pig iron. In 1874 there were 701 furnaces, including charcoal, coke, raw coal and anthracite, and 46 more were in course of construction. These figures do not include the large number of charcoal and other furnaces that have been abandoned. The following are statistics of production of pig iron in net tons:

1810.....	54,000	1870.....	1,865,000
1828.....	130,000	1871.....	1,912,608
1840.....	315,000	1872.....	2,854,558
1849.....	650,000	1873.....	2,868,278
1860.....	919,770	1874.....	2,689,413
1865.....	931,582		

In 1874 there were produced 572,817 net tons of charcoal pig iron; 884,872 tons of raw coal and coke; 1,202,144 anthracite, and 29,580 mixed fuel; total, 2,689,413 net tons.

RAILS.

The first mills in this country which made railroad iron were the Mount Savage Works, Maryland; Montour Iron Works, Danville, Pa., and the Great Western Works, Brady's Bend, Pa.; all of which were put in operation from 1840 to 1843. The Mount Savage mill made rails of the shape of the letter U inverted, while the others made inverted T rails of the

present pattern. In 1850 there were six mills, which made in that year 44,083 net tons of rails. In 1874 there were fifty-eight mills, and three building. The following are statistics of rail production, including steel rails, in net tons:

1860.....	205,038	1872.....	1,000,000
1870.....	620,000	1873.....	890,077
1871.....	775,733	1874, (about).....	750,000

BAR IRON, SHEET, PLATE AND NAILS.

Bar, sheet and plate iron were first made in forges by the slow process of hammering. Plates were slit into rods, which were afterwards cut up into nail lengths, to be pointed and headed by hand. The first slitting mill was built at Milton, Mass., in 1710.

From 1790 to 1810, rolling mills gradually made their appearance, and in 1810 there were 330 forges and 34 rolling and slitting mills, which made 24,541 net tons of bar and plate iron, and 7,864 tons of nails. The first rolling mill in Pittsburg was built in 1812. In 1874 there were 335 rolling mills making rails, bar sheet and plate iron and nails. They made about 1,600,000 net tons of rolled iron, including Bessemer rails, and 215,000 tons of nails. The statistics of production are as follows, in net tons:

YEAR.	Blooms from ore.....	Rails.....	Other ham- mered or rolled iron	Nails.....	Total.....
1810.....			24,541	7,864	32,405
1839.....	8,184		90,768		98,962
1840.....			197,233		197,233
1845.....	30,000		291,600		321,600
1850.....		44,083	233,961		278,044
1856.....		142,555	355,526		498,081
1860.....		205,038			*205,038
1865.....	63,977	356,292	500,048		920,317
1870.....	62,259	620,000	705,000		1,387,259
1871.....	63,090	775,733	493,198	216,802	1,548,733
1872.....	58,000	1,000,000	738,726	203,266	1,999,992
1873.....	62,564	890,077	875,133	201,235	2,029,009
1874, (about).....	50,000	750,000	885,000	215,000	1,900,000

* These figures are for rails alone; it is uncertain how much other iron was rolled in 1860.

BESSEMER STEEL.

The first Bessemer steel works in America were built at Wyandotte, Michigan, in 1865. The ingot from which the first rail was made was taken to Chicago from Wyandotte, and rolled into a rail at the North Chicago Rolling Mill in 1865. In a short time afterward the "plant" was taken to Chicago from Wyandotte. The first rails made upon order were rolled at Johnstown, Pa., from ingots made at Harrisburg, Pa., in 1867. There

are now 8 Bessemer works in operation, 2 soon to be completed and 1 about to be built. The following are statistics of production in net tons:

YEAR.	Total steel.	Steel rails.
1867.....	3,000	2,550
1868.....	8,500	7,225
1869.....	12,000	9,650
1870.....	40,000	34,000
1871.....	45,050	38,250
1872.....	110,500	94,070
1873.....	157,000	129,015
1874, (about).....	190,000	165,000

STEEL, OTHER THAN BESSEMER.

From the best information we have, we believe that cast-steel was first made in this country during the decade 1830-40. Blister-steel was made very much earlier, dating far back into colonial times. In 1850 there were five cast-steel establishments; in 1860, thirteen; in 1870, twenty-seven, and in 1874 about forty. The following are statistics of production, including cast-steel, open-hearth and blister-steel, in net tons:

1860.....	11,838	1872.....	38,000
1870.....	35,000	1873.....	50,000
1871.....	37,000	1874, (about).....	50,000

IMPORTATIONS.

Until very recently the United States has been a large purchaser of foreign iron and steel. So many new iron and steel making establishments were built in the period embraced in the years 1860 to 1874, that we are now, for the first time in the history of the country, in possession of complete facilities and full capacity to manufacture all the country needs of these articles, although it is probable that some special brands of iron and steel may continue to be imported for some time. The following table shows the quantity of leading iron and steel manufactures imported during a series of fiscal years, in net tons, except steel ingots, &c., for which values only are given:

FISCAL YEARS.	Iron rails...	Pig iron.....	Steel rails...	Steel ingots, bars, sheets and wire...	Bar, boiler, band, hoop, sheet and scroll.....
Ended September 30—					
1821.....		918		\$131,291	19,339
1830.....		1,159		351,442	42,489
1839.....		12,508		820,487	99,559
1840.....		5,516		544,674	63,429
Ended June 30—					
1850.....		74,874		1,414,022	20,152
1851.....		67,249		1,690,535	27,248
1852.....		91,874		1,801,186	26,122
1853.....		114,227		3,141,124	37,997
1854.....		160,483		2,669,945	29,269
1855.....	127,516	98,924		2,599,075	147,404
1856.....	155,496	59,012		2,543,215	140,168
1857.....	179,305	51,794		2,639,782	126,548
1858.....	75,745	41,985		1,154,673	93,637
1859.....	69,965	72,518		2,062,029	122,916
1860.....	122,174	71,498		2,735,818	175,506
1861.....	74,491	74,026		2,553,256	127,140
1862.....	8,611	22,247		1,469,374	11,286
1863.....	17,088	31,007		2,195,415	85,833
1864.....	118,714	102,223		2,398,156	123,840
1865.....	77,518	50,655		1,652,189	66,304
1866.....	73,510	101,261		1,992,562	81,712
1867.....	96,272	112,042		2,839,240	105,780
1868.....	151,097	112,133		2,252,393	*30,528
1869.....	266,228	153,412		3,201,046	107,092
1870.....	313,338	171,677		3,342,408	100,529
1871.....	†513,023	199,515		3,750,702	126,263
1872.....	472,366	277,232	122,956	4,033,508	145,824
1873.....	240,505	241,355	160,041	4,155,234	107,234
1874.....	20,379	103,086	146,411	2,960,055	44,983

* Quantity of bar iron not given; value was \$2,733,074.

† Including some steel rails.

EXPORTS.

The exports of raw iron and steel have always been insignificant. In colonial times pig iron and bar iron were for many years, from 1717 to the Revolution, exported to England. In 1728-29, 1,127 gross tons of pig were thus exported; in 1732-33, 2,204 tons of pig and 11 of bar were exported; in 1745, 2,274 tons of pig and 196 of bar; in 1771, 5,303 tons of pig and 2,222 of bar, and in 1776, 316 tons of pig and 28 of bar. Since the Revolution no iron has been exported until very recently, but iron and steel in various manufactured forms, such as agricultural and mechanical implements and edge-tools have for a long time been largely exported. The currency values of exports of iron and steel, and manufactures thereof, in 1872 and 1873, were \$14,360,617 and \$16,687,754, respectively. The quantity of pig iron exported was, in 1872, 1,319 net tons; in 1873, 9,022 net tons; in 1874, 14,321 net tons. Bar, plate, rails and sheet iron, in 1872, 1,554 net tons; in 1873, 820 net tons; in 1874, 5,521 net tons. Nails and spikes, in 1872, 2,682 net tons; in 1873, 3,460 net tons; in 1874,

5,138 net tons. Steel ingots, bars, sheets and wire, in 1872, $8\frac{1}{2}$ net tons; in 1873, 26 net tons; in 1874, 343 net tons. The years given are all calendar years.

The following statement of the aggregate value of the exports of iron and steel, and of the various manufactures thereof, for the last fifty-four years, will serve as a supplement to Mr. Swank's article, and show the gradual increase, from \$108,083, in 1821, to over twenty millions in 1871.

STATEMENT of the value of domestic iron and steel, and manufactures of, exported from the United States from 1821 to 1874 inclusive.

Years.	Value.	Years.	Value.	Years.	Value.	Years.	Value.
1821....	\$108,083	1855....	\$297,357	1849....	\$1,096,630	1863....	\$6,475,279
1822....	152,727	1856....	308,666	1850....	1,914,460	1864....	7,283,166
1823....	97,271	1857....	494,908	1851....	2,265,186	1865....	10,786,559
1824....	142,974	1858....	712,192	1852....	2,320,603	1866....	*9,759,553
1825....	156,173	1859....	946,586	1853....	2,509,304	1867....	9,487,883
1826....	253,895	1860....	1,110,772	1854....	4,216,947	1868....	10,784,654
1827....	275,671	1861....	1,045,825	1855....	3,768,301	1869....	10,873,948
1828....	233,618	1862....	1,110,826	1856....	4,190,096	1870....	13,414,443
1829....	226,537	1863....	532,693	1857....	4,906,491	1871....	20,955,296
1830....	309,473	1864....	716,332	1858....	4,737,094	1872....	11,199,300
1831....	239,271	1865....	857,677	1859....	5,506,880	1873....	13,295,448
1832....	220,588	1866....	1,161,584	1860....	5,712,990	1874....	†14,888,107
1833....	243,603	1867....	1,170,927	1861....	5,932,587		
1834....	236,577	1868....	1,267,318	1862....	4,563,201		

* The original statement gives but \$3,759,553, but that is no doubt erroneous; the figures here given are approximately accurate.

† Not including \$4,482,502 of iron and steel manufactures exported to Canada, the value of which was obtained from Canadian authorities.

From and after the fiscal year 1821, the Reports on Commerce and Navigation, showing the imports and exports of the United States in detail, have been published. The trade-accounts previous to that year are very imperfect.

The following statement shows, with approximate accuracy, the exports of iron and manufactures of iron during the thirty years from 1791 to 1820, inclusive:

TABLE showing the quantity or value of domestic iron and manufactures of iron exported from the United States for the years ending September 30, 1791, to 1820, inclusive.

Years.	Pig.	Bar.	Castings.	Manufactured.	Years.	Pig.	Bar.	Nails.	Castings.	Manufactured.
	<i>Tons.</i>	<i>Tons.</i>				<i>Tons.</i>	<i>Tons.</i>	<i>Lbs.</i>		
1791...	4,179	350	\$2,598	\$3,500	1798..	128	793	.....	\$29,861	\$173,074
1792....	3,268	360	3,202	8,000	1799..	140	614	.....	16,573	271,575
1793....	2,089	763	12,200	10,250	1800..	190	531	.....	11,174	372,261
1794....	2,037	843	2,681	24,304	1801..	223	70	.....	22,798	300,316
1795....	1,046	2,444	3,500	25,600	1802..	535	100	.....	21,106	317,825
1796....	502	843	453	160,094	1803..	877	177	77,551	5,923	21,261
1797....	597	204	22,201	135,594	1804..	454	379	110,780	9,168	40,827

Yrs.	Pig.	Bar.	Nails.	Castings.	Manufac- tured..	Yrs.	Pig.	Bars.	Nails.	Castings.	Manufac- tured..
	<i>Tons.</i>	<i>Tons.</i>	<i>Lbs.</i>				<i>Tons.</i>	<i>Tons.</i>	<i>Lbs.</i>		
1805 .	365	927	278,051	\$25,821	\$40,559	1813 .	.....	.....	14,369	\$19,621	\$812
1806 .	79	307	218,805	47,041	29,700	1814 .	.....	.....	42,763	19	6,581
1807 .	114	132	336,321	55,394	41,239	1815 .	152	80	90,294	5,749	7,784
1808 .	9	67	30,237	4,161	5,899	1816 .	15	36	158,877	14,649	161,394
1809 .	70	277	272,723	5,595	30,461	1817 .	200	22	473,025	32,782	45,942
1810 .	93	429	377,373	9,410	39,293	1818 .	.....	\$3,234	\$21,356	14,963	33,426
1811 .	21	217	347,925	8,143	31,454	1819 .	\$250	\$160	\$14,686	10,638	28,407
1812 .	.....	63	82,785	1,750	36,316	1820 .	.....	\$2,835	\$13,509	3,484	36,675

NOTE.—From 1791 to 1803 the returns do not separate foreign and domestic articles exported, but the great bulk of iron exported was undoubtedly of domestic manufacture.

From Pitkin's Statistical View of Commerce, it appears that there were exported in the year 1770 from the British continental colonies 6,017 tons of pig, 24,064 tons of bar, 2 tons of castings, and 8 tons of wrought iron, valued at \$145,628, \$178,891, \$158 and \$810, respectively.

PENNSYLVANIA THE EMPIRE STATE.

The following extract from an article in the *New York Sun*, shows that Pennsylvania's resources are attracting universal attention. The concession that Pennsylvania is destined to become the Empire State, coming from one of the leading papers of a State that has, for fifty years, been recognized as the Empire State of the Union, is considerable, although the facts warrant it:

"Already the centre of population has shifted beyond the Alleghanies, and it is possible that within a few decades Illinois may base a claim to leadership upon an numerical superiority. There are reasons, however, for believing that the focus of productive industry will be found in another quarter, and that Pennsylvania is destined to exhibit a preponderance of capital and influence in the second century of the republic's existence. A reference to statistics will even indicate that the epoch is not far distant when Pennsylvania may venture, single handed, to cope with the resources of England.

"The future, Peel said, belongs to the nation which shall produce most coal. Novel applications of steam are daily narrowing the field of rude manual labor, and coal seems certain to remain for centuries the most available calorific agent. A country whose employment of this mineral is checked by dwindling supplies and expanding cost of extraction, is doubtless doomed to eventual exclusion from the marts of the world; and in a recent comparative statement of amounts and progressive rates of coal production, the English statesman would probably have recognized the handwriting on the wall. The total yield of the mineral throughout the world, including bituminous, anthracite, and lignite varieties, was estimated, for the year 1872, at two hundred and fifty-five millions of tons, of which England was credited with about one-half, or in exact figures, one hundred and twenty-five millions. The United States ranked second in the list, having extracted over forty-one millions, of which the single State of Pennsylvania furnished about thirty, an amount exceeding the united quotas of France, Austria and Russia, and constituting almost an eighth of the whole production of the globe.

"Still more significant are the figures which exhibit the comparative rates of progression in the development of different coal fields. During the last half century the yield of Pennsylvania has successively doubled with each decade, while England's production, although expanding with curious re-

gularity, requires a period of fifteen years to show an equivalent gain. It is probable that the rate of production in Pennsylvania will be rather accelerated than diminished, since a possible falling off in the delivery of anthracite mines (whose area is limited) must be more than compensated from those exhaustless bituminous deposits which lie west of the Alleghanies. On the other hand, it appears from the report of the Parliamentary Commission that while the English coal fields are in no immediate danger of depletion, a sensible increase in the expense of mining may be expected at an early day. In this case, therefore, we are justified in drawing an inference from statistics; and a simple calculation demonstrates that Pennsylvania should outstrip England in the production of this mineral within sixty years from the present time. In other words, the men are already born who may see a State, which now clamors for protection, controlling with paramount authority the most essential adjunct of human industry, and so far qualified to undersell competitors in every free market throughout the world.

"Among the decisive factors of modern civilization, iron ranks next to coal. By an odd coincidence, a parallel instituted between Pennsylvania and England in respect to the reduction of iron ores conducts to identical results. The total product of iron and steel in the year 1872 was computed at fourteen millions of tons, nearly half of which was furnished by Great Britain. The United States followed with a quota of 2,800,000, of which Pennsylvania contributed one-half, or a tenth of all the iron smelted on the globe. It is, however, the different rates of progression in the respective yields of the two countries to which we would direct attention, the production of Pennsylvanian mines being observed to double once in ten years, and that of England in fifteen. Just now the American iron interest shares the universal depression of business, but such disturbances have occurred before without impairing the general correctness of the rate assigned to its development. From the data before us, we are led to conclude that within rather more than half a century—that is, prior to A. D. 1935—the world-compelling iron lever of British industry may be transferred to Pennsylvania.

"After the mineral which supplies the material of machinery, and that other which generates its motive power, cheap light will certainly be classed among the effective promoters of social progress. In the combination of cheapness with cleanliness and light—evolving power, no illuminating agent rivals petroleum. The ten millions of barrels which were furnished in 1873 by Pennsylvania, constituted the bulk of the world's product. Of this quantity two-thirds were for export, and the foreign demand for the new staple is reported to be steadily growing. This branch of commerce, however, is in its infancy; but, whatever proportions it may be destined to assume, Pennsylvania will probably continue to monopolize it.

“It will be observed that these considerations of the promise which seems inherent in the resources of a neighboring State do not necessarily forecast the pre-eminence of her chief city. The commercial interests of the city of New York are not bounded by those of her own State, and some important mineral districts of Pennsylvania are rather tributary to her than to Philadelphia. But the facts we have cited may be deemed to show that the position of weight and authority among the members of the American Union which the State of New York has held for half a century, will at last probably belong to Pennsylvania.”

MANUFACTURE OF PIG IRON.

During the month of December, 1875, I addressed letters to a number of manufacturers of pig iron, requesting information as to the cost of production of a ton of said iron. The letters were sent to both charcoal and anthracite companies. In a great number of cases no attention was paid to the request; in others, positive refusals to answer. The questions were received, while in a few cases, herewith appended, the information desired, was received:

FROM LANCASTER COUNTY.

Chickies Furnaces, Dec. 22, 1875.

W. HAYES GRIER, Esq.,

DEAR SIR:—Your favor of the 16th instant was duly received. The following, we think, is about a fair average of what it will cost, *at the present time*, to produce a ton of pig iron at the furnaces along the Susquehanna, using Pennsylvania ores. There are many of these furnaces that could not make iron at the figures given below, and some few, having special advantages, can perhaps make it for a little less:

2 tons coal (allowing for waste) @ \$3 90 per ton.....	\$7 80
2½ tons ore, @ \$4 00 per ton.....	10 00
Limestone.....	1 00
Labor, including cost of keeping up individual ore cars.....	4 00
Contingencies, including cost of repairs to furnace at end of blast.....	75
	23 55

The above does not include interest on capital, nor does it allow for any accidents, or bad working of furnace, and would of course increase the cost of the iron produced.

Yours, respectfully,
E. HALDEMAN & CO.

Columbia, Pa., Dec. 28, 1875.

W. HAYES GRIER, Esq.,

DEAR SIR:—Below please find statement of cost of making a ton of iron exclusive of any interest on capital, which is fully one dollar more. The cost of making iron is nearly all labor in one shape or another, as the

value of the ore, coal and limestone in the ground is not more than say \$2 50 to the ton of iron, the balance being labor and transportation which is also made up of labor :

2½ tons ore, @ \$3 50 per ton.....	\$8 75
1¾ tons coal, @ \$4 00 per ton.....	7 00
Limestone.....	1 00
Labor at furnace.....	2 50
Incidentals	75
	<hr/>
	20 00

Yours, very respectfully,

C. S. KAUFFMAN.

The following estimate of the cost of making one ton of anthracite pig metal was received from Messrs. C. B. Grubb & Son, of St. Charles Furnace, at Columbia, Pa :

1¾ tons coal, @ \$3 90 per ton.....	\$6 83
2½ tons ore, @ \$3 52 per ton.....	7 39
1 ton limestone.....	80
Labor.....	3 00
Expenses.....	1 50
	<hr/>
	19 52

This furnace uses the Cornwall ore, and the proprietors are interested in the Cornwall mines.

FROM CENTRE COUNTY.

BELLEVILLE IRON WORKS, }
Bellefonte, Pa., December 18, 1875. }

W. HAYES GRIER, Esq.,

DEAR SIR:—In reply to your inquiry of the 16th instant, we give below a statement of the cost of one ton of pig metal at our works. We believe, however, that our ore, from certain exceptional advantages, does not cost us more than about half the general average.

Cost of one ton Pig Metal at Furnace.

Two and a quarter tons Hematite ore at furnace, at \$2 25.....	\$5 06
One hundred and forty bushels charcoal, including waste, at 9c.,	12 60
Labor at furnace, per ton.....	2 10
Hauling and handling pig, sand, &c.....	20
Blacksmith, carpenter and repairs.....	1 20
Interest on capital, management, &c.....	3 00
	<hr/>
	24 16

BUREAU OF STATISTICS.

Brought forward	\$24 16
The general average cost of one ton of ore, we believe, would not be less than four dollars.	
Two and a quarter tons ore at \$4.....	\$9 00
Add difference between cost of same at \$2 25.....	5 06
	<hr/> 3 94
	<hr/> 28 10
	<hr/>

The above estimate we believe to be rather under than over the average cost of one ton of charcoal pig metal.

Yours truly,

VALENTINES & CO.

A firm in Philadelphia, in responding to our enquiry in relation to the cost of producing a ton of pig iron, says, "that according to our figures, we make the cost of our strictly cold blast charcoal iron, for last year, to be \$35 70. We estimate the cost of insurance and taxes on plant, etc., to be about \$4 on a total of \$39 70. Of course, in the above figures are some expenses that may never occur again; but the only fair way to arrive at the cost is, to take the average of the losses for a number of years. In getting at the cost of a ton of charcoal iron in Pennsylvania, I should think you would have to get the cost from as many furnaces as possible, and then average them, as some of them get their ores very cheap, and in other places the hauling of charcoal is much less expensive. There was an article published in the *Iron Age*, early this year, (1875,) giving the cost of a ton of charcoal iron in Centre county as being something under \$20. But we have never met any Pennsylvania iron man that *knew how to do it.*"

THE IRON TRADE FOR 1875.

The *Iron Age*, through one of its Philadelphia correspondents, publishes the following review of the iron trade for the year 1875:

PIG IRON

In this market for the past year has been handled in small parcels, excepting in sales made to the pipe founders, who have been the principal consumers of No. 2 and No. 3. Prices were remarkably steady from January to July, since which time they have been on a descending scale, and now sales of standard makes of Nos. 2 and 3 are quoted at \$20 and \$18, currency, f. o. b. cars at the furnace, or at the present gold premium of 13 per cent., equal to \$17 70 and \$15 93 in gold, figures which since 1842 have only been reached in years of the greatest depression of our trade, to wit: 1849, 1850, 1851 and until July of 1853, and again for a short period in 1861. Looking at the past, the only natural conclusion that can be drawn is that the present prices are too low, and that the re-action is but a question of time. It is uniformly conceded that a rapid rise would be as injurious in the end as the present condition of affairs, and it is therefore to be hoped that the change will be gradual. The production of pig for the last twelve months has been, considering the limited demand, unprecedentedly large, and the continued weakening of prices must be attributed more to this fact than to any other. The warehousing and warrant system, introduced about a year ago, has not resulted in the complete success expected by its projectors, but enough has been done to warrant the continuance of the business, and we have no doubt, that before long the advantages and security of warrants, especially at the present low prices of metal, will be appreciated by capitalists and bankers. Below we give the estimated stocks of pig iron on hand in the different districts, in gross tons.

ESTIMATED STOCK OF ANTHRACITE PIG IRON ON HAND.

	Dec. 1874. Tons.	Dec. 1875. Tons.	Increase. Tons.	Decrease. Tons.
Lehigh Valley, inclusive of the Jersey group,	25,000	50,000	25,000	.....
Schuylkill.....	36,000	60,000	24,000	.....
Lower Susquehanna.....	20,000	20,000	.....	.....
Upper Susquehanna.....	10,000	25,000	15,000	.....
Shenango and Mahoning valleys, bituminous coal and coke.....	100,000	36,000	.....	64,000

In charcoal pig metal, the stock on hand at the close of last year, aggregated at least 275,000 gross tons for the entire country, and prices have consequently been much depressed the year through. The stocks have been considerably reduced by consumption, and the low prices prevailing have prevented a large number of stacks from continuing operations. About \$32 per ton is the selling price of good makes, although some few of superior quality for specialties are being sold at \$35, and others of inferior or unknown make are selling as low as \$29. These figures apply to cold or warm blast irons, the price of hot blast western irons being much lower. Below we append a table of the values of No. 1 anthracite pig, of good makes in this market for the respective months of 1869 to 1875, inclusive:

	1869.	1870.	1871.	1872.	1873.	1874.	1875.
January.....	\$42 18	\$35 17	\$30 50	\$37 50	\$45 00	\$33 00	\$26 00
February.....	40 25	34 50	30 91	40 00	47 80	33 00	27 00
March.....	41 75	33 95	34 75	43 50	47 89	33 00	27 50
April.....	40 00	32 50	35 37	48 50	47 50	32 50	27 50
May.....	39 50	32 30	35 50	49 00	47 00	32 50	27 00
June.....	40 80	32 50	35 50	50 25	46 00	32 50	27 00
July.....	42 00	32 50	35 75	51 50	44 50	32 00	27 00
August.....	41 00	33 50	36 25	52 00	43 00	31 50	26 50
September.....	40 30	32 69	37 00	53 00	41 00	31 00	25 75
October.....	40 00	31 83	37 20	52 00	39 00	30 00	25 00
November.....	38 70	31 25	37 50	50 00	33 00	27 00	24 00
December.....	37 60	30 50	37 50	45 00	32 50	26 00	23 75

The production of pig metal, as ascertained for 1871, 1872, 1873, 1874, and estimated for 1875, is as follows:

	Anthracite, tons.	Soft coal and coke, tons....	Charcoal, tons.	Anthracite and coke, tons....	Total in tons of 2,000 lbs.....
1871.....	956,608	570,000	385,000	.....	1,912,608
1872.....	1,369,812	946,913	500,587	37,246	2,854,558
1873.....	1,312,754	933,900	577,620	44,004	2,868,278
1874.....	1,202,144	886,612	572,817	25,840	2,689,413
1875.....	.....	.....	.....	.....	2,000,000

Comparative number of furnaces out of blast December, 1874, and December, 1875. Estimated.

	1874.	1875.	*1874.	†1875.
Anthracite.....	71	122	12,128	20,815
Soft coal and coke.....	93	100	21,170	21,800
Anthracite and coke.....	2	1	700	300
Charcoal.....	125	145	9,022	11,093
Totals.....	291	368	43,020	54,008

* Productive capacity per week in tons. † Tons.

Total number of furnaces in the country, 713; with an annual capacity of 4,000,000 gross tons.

In old rails and scrap iron there have been no importations except, in the latter, crop ends of foreign bars for steel purposes. The domestic supply has been fully equal to the demand, and in old rails very much in excess. The price of wrought scrap iron has been pretty well maintained, but that of old rails has been continually weakening in consequence of the over supply and little demand, and bids fair to continue so long as the replacement of iron rails by steel keeps up. Old Bessemer steel rails and crop ends have been in fair demand for the manufacture of wire, wagon tire, crow-bars, etc. The prices of old rails and wrought scrap for several years past are as follows:

OLD RAILS.

	1872.	1873.	1874.	1875.
January.....	\$42 00	\$49 00	\$40 00	\$30 00
February.....	44 50	49 50	41 00	31 50
March.....	48 50	52 00	41 50	31 50
April.....	52 00	50 25	40 00	30 75
May.....	53 00	46 50	37 50	30 50
June.....	50 50	46 00	36 00	29 50
July.....	50 50	44 25	36 00	29 50
August.....	51 00	44 25	35 00	28 25
September.....	51 00	44 00	34 00	27 50
October.....	48 00	40 00	32 00	27 00
November.....	46 50	37 00	31 00	26 00
December.....	46 50	40 00	30 00	25 00

NO. 1 WROUGHT SCRAP.

	1873.	1874.	1875.
January.....	\$47 00	\$37 00	\$29 00
February.....	49 00	37 00	32 00
March.....	50 00	37 00	33 50
April.....	52 00	36 00	33 50
May.....	53 00	35 00	32 50
June.....	48 00	34 00	30 50
July.....	44 00	33 00	30 00
August.....	40 00	32 00	29 00
September.....	40 00	32 00	29 50
October.....	35 00	33 00	29 00
November.....	36 00	29 00	29 00
December.....	39 00	29 00	28 00

New iron rails of domestic manufacture have continued to decline, the price in January last having been \$50 at mill, and to-day's orders can be placed at \$45 and under for heavy sections. The mills generally have been very dull, and the output has been materially reduced, the low prices prevailing for steel rails having caused railroad managers to re-lay their worn out lines with steel, and this reduces materially the demand for iron rails. The output for 1873 was 761,062 net tons; that of 1874, 584,469 net tons; and the estimated production for 1875, 450,000 net tons.

Average monthly prices of American iron rails at Philadelphia :

NEW RAILS.

	1872.	1873.	1874.	1875.
January	\$71 00	\$84 00	\$63 00	\$51 00
February	75 00	84 00	63 00	51 00
March	79 00	84 00	60 50	51 00
April	84 00	83 00	58 60	50 00
May	91 00	82 00	60 00	50 00
June	90 00	82 00	59 00	50 00
July	89 00	78 00	58 40	49 00
August	88 00	76 00	56 50	48 00
September	88 00	75 00	55 50	46 50
October	88 00	70 00	55 00	46 50
November	87 00	61 00	52 25	46 00
December	85 00	61 00	50 00	45 00

Steel rails have been in fair demand throughout the year, but at materially lower prices. The works generally have been fully occupied, and many with orders at present booked for delivery well into the future. Prices ranged from \$75 in January, on new contracts, to \$65 in December. The estimated production for the year is 250,000 net tons.

Out-put of iron and steel rails, in tons of 2,000lbs.	Tons.	Tons Bessemer steel rails.
1871	775,733	.....
1872	1,000,000	94,070
1873	890,077	129,015
1874	729,413	144,944
1875, (estimated)	700,000	250,000

Merchant bars have been dull and at unremunerative figures the year through, and the outlook does not promise anything better. Nearly all the country mills are closed and have been for some time past. The Western mills have offered their iron at two to three-tenths cents per pound less than our city mills will accept orders at. Fortunately there has been but little trouble in the east with the puddlers, and where there have been any strikes they have been of short duration. With reduced wages and the low price for raw material, an increased demand is the only thing wanted to place this branch of the trade on a prosperous basis. Below we give the prices for several years past. Fair specifications could always be placed one to two-tenths cents per pound below these figures :

BAR IRON.

	1872.	1873.	1874.	1875.
January	\$87 50	\$100 80	\$67 20	\$56 00
February.....	88 75	98 56	67 20	58 24
March.....	97 42	96 32	67 20	60 48
April.....	102 12	96 32	67 20	60 48
May.....	103 04	94 08	67 20	60 48
June.....	103 04	91 84	62 40	60 48
July.....	105 28	84 50	58 20	60 48
August.....	112 00	82 88	60 40	58 24
September.....	116 48	80 64	67 20	53 76
October.....	113 68	76 16	62 40	56 00
November.....	106 40	70 56	56 00	56 00
December	100 80	67 20	56 00	56 00

In reviewing the prices of both raw and manufactured iron, it will be noticed that raw irons have shown a greater percentage of decrease in values than the manufactured iron; for instance, pig iron from \$22 to \$18 for No. 3 mill iron, or say 18 per cent.; old iron rails from \$30 to \$25, or 17 per cent.; whereas new iron rails have fallen from \$50 to \$43, or 14 per cent., a difference of 3 to 4 per cent. in favor of the manufacturer. Nor has this been the only difference, for coupled with it is a heavy reduction in both skilled and common labor; so that looking at the interests of the makers of finished iron, their position is certainly better than this time a year ago. For the makers of pig, a reduction in the cost of ores and of general labor has placed them on a footing equal, we believe, to the decline in the price of their products. The production of pig iron in 1874, was largely in excess of the estimates, amounting to 2,689,413 net tons, and, taken with the large production of this year, (considering the smaller demand,) has held over the market a large unsold balance which has had a most depressing effect. There has been but slight trouble with labor during the year, the only strike of any duration being that of the puddlers in Pittsburgh, and this was eventually compromised by concessions on both sides. In the east the hands have generally accepted all fair reductions asked by the employers without trouble. That a much larger consumption of iron has not occurred is not so much due to the fact that it was not wanted, but because a general want of confidence has existed, especially in new railroad enterprises, which practically prevented business. Could this element of uncertainty be removed, the volume of business would expand immensely; but it requires time, and time only, to cure this. It is undoubtedly the fact that the trade is to-day in a better position than a year ago, although prices are nominally lower, and demand at present at a standstill; but this latter is generally the case at this time of the year, most of the large purchasers having taken advantage of water transportation a month since.

Without attempting to predict for so uncertain a future, we can at least safely state that prices are very near bottom.

PRODUCTION OF PIG IRON IN THE UNITED STATES IN 1874.

The American Iron and Steel Association presented to its members, October 1, 1875, full statistics of the production of pig iron in the United States in 1874. The total production was 2,689,413 net tons, against 2,868,278 net tons in 1873, and 2,854,558 net tons in 1872, showing a decrease of 178,865 tons as compared with 1873, and 165,145 tons as compared with 1872. Notwithstanding this decrease, the production in 1874 was much larger than has been generally estimated—much larger even than partial returns made to the Association at the close of 1874 indicated. This unexpected result is, however, susceptible of a satisfactory explanation.

In 1872 there was every inducement for furnace owners to make all the iron that was possible, for prices were high and the demand was constant; hence the hitherto unexampled yield of that year, 2,854,558 tons. In 1873 a number of large new furnaces, built in that year and in 1872, were put in blast, and during the first half of the year greatly augmented the production of iron over that of the corresponding period of 1872. Had the prices of 1872 been maintained during 1873, and the demand for iron experienced no abatement, there can be no doubt that the production of 1873 would have reached 3,500,000 tons.

But at the beginning of summer it became evident that production was outrunning consumption, and it will be remembered that on the 19th of June a convention of pig iron makers assembled at Cleveland and adopted a resolution recommending a restriction of production. This recommendation was so far followed or anticipated as to cause the blowing out during the summer of a number of furnaces. Others were blown out for repairs, at various periods during the year, and were not again put in blast. In September the panic came, and it was at once made evident, by the resultant shrinkage in prices and decrease in consumption, that production would have to be still further reduced; and accordingly a number of additional furnaces were blown out, so that, by the close of the year, of 665 furnaces then completed, 252 were out of blast, and 413 were in blast. The production of the year was 2,868,278 tons, or 13,720 tons in excess of that of 1872. The year 1874 opened with 413 furnaces in blast, but with a strong hope generally prevailing that the effects of the panic would soon disappear, when a revival of the demand for iron would follow. Of the 413 furnaces then continuing to make iron, it must not be forgotten that nearly every one of the large, new and improved furnaces built in 1872 and in 1873 was included. Stated otherwise, most of the furnaces then out of blast were furnaces of small capacity. The hopes of a revival of business that were entertained at the beginning of the year were soon found to be delusive, and then began the agitation of the policy of still further restrict-

ing production by means of a definite system which should aim at an equitable division of the trade. This agitation proved fruitless, but while it was pending very few furnaces were blown out, while fully as many others, some of which were new, were blown in. It was not until near the close of the year that a general determination to blow out furnaces was reached, and when the year closed, of 701 furnaces then completed, 336 were out of blast and 365 were in blast. The production of the year was 2,689,413 tons, or 178,865 tons less than the product of 1873.

When we consider that the furnaces which made 2,854,558 tons of iron in 1872 were mostly small and, owing to the excitement and extravagance of those days, not so managed as to produce the best results; when we consider that the lessened number of furnaces which made 2,868,278 tons in 1873 included all the large and improved new furnaces; and when we consider that there were almost as many furnaces in blast in 1874 as in 1873, that as a rule the best furnaces in the country were running in 1874, while the poorest stood idle, and that from motives of enforced economy, and by reason of increased skill, the management of most of the furnaces in blast in that year, was such as to produce the largest possible yield, we need no longer wonder that the production of 1874 was 2,689,413 tons, or only 178,865 tons less than the product of 1873. The result is startling, but it is a revelation that is to be followed by one equally startling.

The quantity of pig iron of all kinds which was on hand and unsold at the close of 1874, in the hands of makers or their agents, was 795,784 net tons. The quantity which was held by speculative parties, or was in the hands of creditors, or in the hands of consumers, was undoubtedly large; so that, at the close of 1874, the total quantity of pig iron in the country, exclusive of the small stocks of foreign iron, may be safely estimated at 1,000,000 tons. If the country were prosperous; if the demand for iron were equal to the average demand of the past ten years; and if old rails could not be used as a substitute for pig iron, this quantity of pig iron would not have been too large to have in stock at the beginning of this year. But as these favorable conditions did not exist, it is plain that we commenced the year 1875 with far too much pig iron for the good of the trade. Prices could not be expected to improve under such circumstances, and we now see why they have not improved. Although more furnaces have blown out since the 1st of January than have been blown in, the quantity of iron that has been made since then, joined to the 1,000,000 tons then on hand, has been entirely too large to exercise any other than a depressing effect on the market.

On the 1st of February, 1875, of 701 completed furnace stacks in the country, there were in blast 303 stacks, and out of blast, 398 stacks. Sixty-two furnaces had been blown out in January. These figures indicate

the lowest degree of depression reached since the panic up to that date. Since February 1st, the number of furnaces out of blast has been slightly increased.

The number of new furnaces completed in 1874 was 38, against 50 in 1873 and 41 in 1872. The astonishing number of 46 stacks is reported to us as being in course of erection in 1875, while other new furnaces are projected.

The following States made more iron in 1874 than in 1873: Maine, Vermont, Massachusetts, New York, Virginia, Georgia, Alabama, Texas, West Virginia, Tennessee, Ohio and Michigan.

The following States made less iron in 1874 than in 1873: Connecticut, New Jersey, Pennsylvania Maryland, North Carolina, Kentucky, Indiana, Illinois, Wisconsin and Missouri.

The district showing the greatest increase during 1874, was the miscellaneous bituminous coal and coke district of Ohio. The district showing the greatest decrease during 1874, was the Lehigh anthracite district of Pennsylvania.

Utah Territory made her first pig iron in 1874—200 tons of charcoal. After a long rest, Oregon, with one furnace, made 2,500 tons of charcoal iron in 1874. Texas made 1,012 tons of charcoal iron in 1874. South Carolina, with eight furnaces, and Minnesota, with one furnace, made no iron in that year.

The production of charcoal pig iron in 1874, was within 1,903 net tons of that of 1873, being 572,817 net tons in 1874, against 574,720 tons in 1873.

The total imports of pig iron into the United States in 1874, were 61,165 net tons, against 154,708 net tons in 1873, 295,967 net tons in 1872, and 245,535 net tons in 1871.

The total exports of pig iron from the United States to all countries in 1874, were 16,039 net tons, against 10,103 net tons in 1873, and 1,477 net tons in 1872.

Below we present a table showing the growth of the pig iron branch of the iron trade of the United States from 1854 to 1874, compiled from statistics procured by this Association.

YEARS.	Anthracite.	Charcoal....	Bituminous coal and coke....	Total.....
1854.....	339,435	342,298	54,485	736,218
1855.....	381,866	339,922	62,390	784,178
1856.....	443,113	370,470	69,554	883,137
1857.....	390,385	330,321	77,451	798,157
1858.....	361,430	285,313	58,351	705,094
1859.....	471,745	284,041	84,841	840,627
1860.....	519,211	278,331	122,228	919,770
1861.....	409,229	195,278	127,037	731,544
1862.....	470,315	186,660	130,687	787,662
1863.....	577,638	212,005	157,961	947,604
1864.....	684,018	241,853	210,125	1,135,996
1865.....	479,558	262,342	189,682	931,582
1866.....	749,367	332,580	268,396	1,350,343
1867.....	798,638	344,341	318,647	1,461,626
1868.....	893,000	370,000	340,000	1,603,000
1869.....	971,150	392,150	553,341	1,916,641
1870.....	930,000	365,000	570,000	1,865,000
1871.....	956,608	385,000	570,000	1,912,608
1872.....	1,369,812	500,587	984,159	2,854,558
1873.....	1,312,754	577,620	977,904	2,868,278
1874.....	1,202,144	576,557	910,712	2,689,413

MINERAL RESOURCES OF LANCASTER COUNTY.

Lancaster county was originally mainly settled by Germans, who came hither from the continent of Europe, and at once commenced locating farms and cultivating the soil ; therefore, although it is essentially an agricultural county, yet in manufactures and mineral resources and especially in the quantity and quality of her iron ores, she decidedly occupies a very advanced position ; and as time advances new deposits of this useful mineral are being discovered. Coal, iron ore and limestone are the three great essentials in the production of iron bloom and pig metal, and Lancaster county possessed these and had her furnaces before anthracite or bituminous coals were discovered in Pennsylvania, notwithstanding mineral coal has almost entirely superseded charcoal in the production of iron. It may be said that where any two of these essential minerals occur, the manufacture of iron may be profitably pursued ; and, although, so far as known, Lancaster county is destitute of stone coal, yet she abundantly possesses iron ore and limestone, and through these, her mineral wealth is effective. "The iron ores of Lancaster county are almost entirely *hematite* or *limonite* ; a few small veins of *magnetite* ores have been discovered but they are unprofitable to operate. The great deposit of ore is Chestnut Hill, situated about seven miles from the city of Lancaster and three miles from Columbia, in West Hempfield township. This ore is found in a gorge of the primitive formation, rests upon the primal white sandstone, is overlaid by argillaceous slate and bounded at its outlet of the gorge by the limestone valley. The ore is of the best quality for all purposes of manufacture, except that of steel, and is considered almost of neutral quality, yielding from 40 to 55 per cent. of metallic iron. The ore property there is now owned in different tracts by C. B. Grubb, heirs of E. B. Grubb, Chestnut Hill iron ore company, Silver Spring iron ore company, other parties owning small outcroppings of the main deposit. The mine was worked to a very limited extent in the latter part of the eighteenth century, but since 1832 to the present time considerably over 1,000,000 tons may be safely given as the quantity taken out of these mines alone. Several good mines have been opened within a few years in the neighborhood of Quarryville and New Providence and large quantities of ore are taken out, but the quality being 'cold short,' the ore requires to be mixed with other ores of a different character to produce good iron.

"At Conowingo an excellent quality of ore has been worked for a number of years, but the mine is not yet sufficiently developed to judge of its extent. The thirteen anthracite furnaces in the county, when in operation, use not less than 185,000 tons of ore per annum and produce over 71,000 tons of pig iron; of this quantity over 50,000 tons of ore are mined in the county, and of the balance, or 130,000 tons, the most is taken from York county, some from Cornwall, in Lebanon county, and some from Perry and Cumberland counties. It may be estimated that about 30,000 tons of ore are taken from Lancaster county to Phoenixville, Danville and other places, thus making the production of this county about 80 or 85,000 tons of ore per annum, which at \$4 00 per ton, as the average value at the mines, would represent \$320,000 worth of mineral per annum. The value of 71,000 tons of pig metal produced annually in Lancaster county is not less than \$2,500,000; and of railroad and merchants' bar-iron \$1,000,000.

"Nine-tenths of the cost of pig-iron is for actual labor, the value of the raw material being very small, and of the \$2,500,000 worth of iron produced \$2,250,000 goes to the laborer, it requiring eighteen days labor to produce one ton of pig metal, thus showing that what creates so much labor must be of vast advantage to the farmer and storekeeper—namely, the iron business."

To illustrate how immensely values are increased in lands containing productive iron ore mines, it may be stated that less than fifty years ago the Chestnut Hill ore fields brought with difficulty from twenty to thirty dollars an acre, which have since been sold for one hundred and twenty-five thousand dollars an acre. These mines seem exhaustless, and since the invention and introduction of ore washers, millions of tons of the best ore have been re-claimed that had been formerly cast aside as merely useless debris.

The following table prepared by Mr. C. B. Grubb, for Mombert's History of Lancaster County, exhibits the manufacture of pig iron in the county when all of said furnaces are in operation, per annum :

ANTHRACITE FURNACES.

NAME.	No.	Locality.	Proprietor.	Built.	Capacity.
St. Charles...	1 furnace.	Columbia...	C. B. Grubb	1854	5,500 tons
Cordelia	1... do...	do	Kauffman Iron company.	1846	5,000 "
Shawnee.....	3... do...	do	Chestnut Hill O. comp'y.	1844-53	15,000 "
Henry Clay..	1... do...	do	Denny & Hess.....	1845	5,000 "
Musselman ..	1... do...	Marietta	H. Musselman.....	1868	5,500 "
Marietta	2... do...	do	H. M. Watts & Sons.....	1848-50	10,000 "
Donegal	1... do...	do	Myers & Benson	1847	5,000 "
Eagle	1... do...	do	S. F. Eagle & Sons.....	1854	5,000 "
Chiques	1... do...	do	E. Haldeman & Co.....	1845	5,000 "
Conestoga ..	1... do...	Lancaster...	Thomas & Peacock	1846	5,000 "
Safe Harbor..	1... do...	Safe Harbor.	Phoenix company.....	1848	5,000 "
14 furnaces					71,000 tons

Since the above table was originally prepared, some changes have taken place in the *status* of some of the furnaces therein named, and especially in their proprietorships. James Myers and Dr. E. Haldeman have since died; S. F. Eagle has sold out to other parties, but still the furnaces, except Safe Harbor, are continued, or temporarily suspended.

CHARCOAL FURNACES

NAME.	No.	Locality.	Proprietor.	Built.	Capacity.
Mount Hope.	1	Mount Hope	E. & A. B. Grubb	1785	1,000 tons.
Conowingo ..	1	Conowingo ..	Cabeen & Co	1809	1,000 tons.
	2				2,000 tons.

ROLLING MILLS OF LANCASTER COUNTY.

NAME.	No.	Locality.	Specific Product.	Capacity.
Columbia....	1	Columbia...	Railroad iron.....	6,000 tons per annum
Susquehanna	1	...do	Merchant iron.....	5,000..do...do.
Rohrerstown	1	Rohrerst'n.....	do.....	1,200..do...do.
Becker.....	1	Marietta.....	do.....	1,200..do...do.
Safe Harbor..	1	Safe Harbor	Railroad iron.....	6,000..do...do.
	5			19,400 tons per annum

Safe Harbor has long since suspended, without any prospect of going into operation, at least not again until the Columbia and Port Deposit railroad is finished and in operation.

MANUFACTURE OF BLOOMS IN LANCASTER COUNTY.

The Spring Grove, Pool, Windsor and Brook forges have not been in operation for many years and are not likely to be ever revived again. Those in operation are the Ringwood, Sadsbury, Martie and Colemanville, and they each produce about 1,000 tons of blooms annually, their aggregate production being 4,000 tons of bloom iron.

LANCASTER COUNTY NICKEL MINES.

According to authentic history the Gap mines had been worked for copper prior to the year 1744, and from the traditions of the neighborhood, they were first discovered about the year 1718. For 80 or 90 years after their discovery they were worked at intervals by four or five different companies, but none of those companies found sufficient copper to pay expenses; consequently they would work them at a loss for a while and then abandon them and let them stand idle until new parties would take hold of them and start them again, but still without pecuniary success.

In 1849, after these mines had been standing idle for thirty or forty years, a stock company was formed under the name of the *Gap Mining*

Company, to work them again for copper. They worked them on this occasion on a rather larger scale than the previous companies, putting up a twenty-five horse-power steam engine for pumping out the water and hoisting with, and employed a number of miners and laborers. They found considerable copper ore and sold it to copper-smelters in Baltimore and in Boston, but not nearly enough to pay the expenses of working the mines. Nothing was known at this period about nickel, although in mining for copper large quantities of nickel was mined along with it which was thrown away as worthless rubbish. It was called by the miners "Mundic," (*Sulphuret of iron*,) a very common, abundant and nearly worthless mineral.

In the beginning of 1852 the present superintendent of these works came to the Gap mines to work as a miner. He immediately discovered and made known that what was termed *mundic*, and was being thrown away as refuse, was not mundic, but some other kind of mineral, but *what* mineral, he could not tell. This led to samples of it being sent to chemists in Boston and Baltimore, but their analysis proved unsatisfactory. Finally, in the latter part of 1852, or the beginning of 1853, a sample was sent to Prof. F. A. Genth, a celebrated chemist of Philadelphia, who made an analysis of it and pronounced it *nickel*, and gave the percentage of the pure metal that the ore contained. Great respect is entertained for Prof. Genth for his profound knowledge, perseverance and skill in mineral analysis.

At this era in their history the "Gap Copper Mines" changed the import of their title to that of the "Gap Nickel Mines." The Gap mining company then mined the nickel and sold it to a separate company, who smelted it a while in Philadelphia. A year or two afterwards another separate company erected smelting works about three-quarters of a mile north of the mines. They purchased the ore from the Gap mining company and smelted it at their works. But the smelting of nickel proved unprofitable, and in consequence thereof the smelting works subsequently changed hands several times with considerable loss to the owners.

In 1859 the Gap mining company purchased the smelting works and smelted their own ore, but in 1860, finding that neither mining nor smelting, nor both combined, would come near paying expenses, they "closed down" the entire concern—mines, smelting, labor and all. This terminated the Gap mining company's operations, and they were never resumed by that company. The works then remained idle nearly two years; the mines filled with water, which ran out of the top of the shafts; the engines and other machinery were rusting out; the furnaces and the stacks, which had been previously nearly worn out, were now decaying and falling to the ground.

Such was the condition of things when the present proprietor, Joseph Wharton, Esq., an enterprising Philadelphia Quaker, assumed the control

of the works, in November, 1862. He, at that time, purchased from the Gap mining company one-half of the works, and leased the other half for a term of years, but shortly afterwards he purchased the other half, and thus became the sole proprietor of the whole concern—mines, smelting works, machinery, and all the appurtenances thereto belonging—the whole, of course, costing him a large amount of money. Mr. Wharton immediately commenced repairing the engines, blowing cylinders, &c.; pumped the water out of the mines; re-built the furnaces; erected new stacks, and by the following spring (May, 1863) he got into operation again the mining, smelting, and also the refining of nickel. Perhaps it ought to be stated here, that at the time Mr. Wharton purchased the mines and furnaces, he also purchased a large manufacturing establishment in the city of Camden, New Jersey, and fitted it up for a nickel refinery; for be it understood, that when the metal leaves the Gap furnaces it is not near pure—only a part of the dross or worthless matter has been eliminated. In that condition it is called “matte,” and is thus shipped to the refinery in Camden, where it goes through a great many processes, requiring much time, labor and skill to bring out the pure nickel. In fact, the processes of making nickel are so tedious and complicated that nearly a year elapses after the ore is mined before the pure or finished metal is produced therefrom. A man must surely have a great amount of courage, as well as capital, who, in the face of disaster, undertakes such a gigantic enterprise alone, after seeing so many strong companies had previously tried it and failed. But Mr. Wharton not only made the attempt alone, but also persevered in it; and by sheer force of character and perseverance, with the liberal expenditure of money, he has overcome all obstacles, built up one of the most complete nickel establishments in the civilized world, and by energy and economy has made the mining, smelting and refining of nickel in America a successful industry, and brings many thousands of dollars every month into the county of Lancaster.

The nickel mines are situated in Bart township and the smelting works are about three-quarters of a mile north of them, in Paradise township. The original mine tract purchased by Mr. Wharton from the Gap company was eighty acres, but since then he has purchased one hundred and eighty-eight acres adjoining farm land. The original smelting works tract was nine acres, but he has added thereto, by purchase, seventy-four acres, making the total mining and smelting works tracts three hundred and fifty-one acres. There are erected on those properties a large mansion house at the mines, where the superintendent of the works resides, a large country store and dwelling, (White Hall store,) near the mines, twenty-two tenant houses, which are occupied by the workmen, three barns, stables, sheds, &c., &c. A township school house is near the mines and a commodious Episcopal

church is on the mine tract, erected in 1857, the Gap mining company donating the land for church and graveyard. About thirty horses and mules are owned and employed about the works for hauling ore, matte, fuel, &c. One hundred employees are engaged at the mines, fifty at the smelting works and one hundred at the refinery. The mines are opened out on the vein, in length, by shafts and tunnels, about two thousand feet, and the deposit point attained is two hundred and thirty-five feet. There are six shafts, ranging from one hundred to two hundred and thirty-five feet in depth, and a few others from sixty to eighty feet in depth. All the shafts are perpendicular and the ore is rarely found in paying quantities nearer than from fifty to sixty feet to the surface. There are two steam engines in use at the mines. One is a "low pressure" Cornish engine of one hundred horse-power, for pumping water out of the mines, and the other is a twenty-five horse-power, "high pressure," for hoisting out the ore, &c.

The vein-stone, or rock matter, mixed with the ore is a dark colored highly crystalline hornblende, considerable quantities of which have to be mined along with and hoisted out with the ore. The ore, after it is mined, is brought through the tunnels to the hoisting shaft in small railroad cars carrying about one ton each. It is then brought to the surface by hoisting in large buckets carrying about one thousand pounds each, or in square wooden boxes (skips) working in "guides" carrying two thousand pounds each. After the ore is brought to the surface it is prepared for the smelting works by breaking up the large lumps with heavy sledges and picking out the rock or refuse matter; washing and hand-picking the middle sized pieces and "jigging" the fine. (*Jigging* is the process of separating the common rock matter from the ore, in water, by the difference in their specific gravity.) After the ore is prepared it is hauled to the smelting works where it is first run through one of "Blake's Rock Breakers," then it is put into large roasting kilns and set on fire to drive off a portion of the sulphur it contains. When once on fire it burns four or five weeks without any other fuel. After it is thus prepared it is hauled to the smelting furnaces and melted. This smelting does not bring out the pure metal, only a part of the worthless matter is taken out by it. The product of the furnaces is a kind of concentrated ore called *matte*. The matte comes out of the furnace in a liquid state, and is run into "pigs" in sand moulds similar to the pig-iron from an iron furnace. This pig-matte is next put through the "rock breakers" and then through a powerful Cornish crusher by which it is reduced to a coarse powder, in which condition it is inclosed in barrels and shipped to the refinery in Camden, New Jersey.

There are two twenty-five horse-power steam engines at the smelting works. One drives the blast cylinders, which gives blast to the furnaces, and the other drives the rock breaker and the Cornish crusher. There are *three*

blast furnaces but only two are in blast at a time. The works have also three cooper shops, a blacksmith shop and a wagon-maker shop. The concern mines and smelts six hundred tons of ore per month. The ore, when it leaves the mines, contains from one to three per cent. of pure nickel; it also contains *cobalt*, *copper*, *iron* and *sulphur*. Pure nickel is worth from two to three dollars per pound. The refinery is called the "American Nickel Works," and its products are pure nickel, nickel oxide, nickel alloys, nickel castings, nickel saltz, &c.; also, pure cobalt, cobalt oxide, cobalt alloys, cobalt castings, cobalt saltz, copper, acetate of copper, &c., &c.

For the foregoing history and details of the Gap Nickel Mines, we are indebted to Captain Charles Doble, the courteous superintendent of the mines and smelting works, who resides on the premises, and whose intelligence, practical knowledge and long identification with them, enables him to speak of them authentically. These mines are situated about sixteen miles east of Lancaster city and about one mile south of the Pennsylvania railroad. They are about forty-nine miles west of the city of Philadelphia, and so far as known, no other nickel mines are as productive as these.

ZINC MINES OF LANCASTER COUNTY.

The zinc mines of Lancaster county, are located in East Hempfield township, about five miles west of Lancaster city, and about half a mile north of the turnpike leading from that city to Harrisburg.

These mines were first discovered and opened for the mining of lead, in 1847, by Mr. Henry Shenk, then the proprietor of the lands. Mr. Shenk was altogether inexperienced in mineralogy and the practical process of mining, and therefore the enterprise failed. The mineral he obtained was a sulphuret of lead mixed with quartz and carbonate of lime, but even then the mines yielded more *blende* or sulphuret of zinc, than lead, but the proprietor did not seem to realize it, at least no attempt was made to utilize it, and the lead alone was valued and sought for. Some years subsequent, the mines were leased to a Philadelphia company, who erected temporary "crushers" and about twenty small furnaces, together with a smoke stack, bellows worked by steam, buildings, and condensing stacks, and worked the mines for zinc, which was carbonized in the form of fumes and vapors, collected, barreled and sold for paint; but through some misunderstanding between the proprietor and the company, the works were suspended. Some litigation followed, and finally about 1872 a new company, with Mr. Daniel Herr, former county treasurer, as president, the working of the mines was resumed again, and the lands and mines were purchased by said company, not so much with the view of making a permanent investment, as from a desire to retain them until a proper person could be found, who had sufficient experimental knowledge to operate them to advantage. Finally,

about a year ago, the lands—200 acres—were sold to Bamford Brothers, who are the present proprietors, and who seem to entertain the idea that they are “the right men,” in the largest sense, “in the right place,” and that these mines have at last entered upon a successful career. This firm are Englishmen, of large experience in mining, and they have invested nearly one hundred thousand dollars in buildings and machinery, not including the land. These gentlemen are intelligent and enterprising, and seem to have a thorough knowledge of what they are doing, and what is necessary to be done in order to make these mines a *paying*, and therefore, *successful* business.

The quantity of zinc ore, in the form of *Blende* or sulphuret of zinc, seems to be inexhaustable. Two shafts have been sunk and are worked, and hundreds of tons of the ore taken out. The mines also yield sulphuret of lead, and it is proposed to also erect works for the smelting of that material. They also yield the carbonates of zinc and lead. The mode employed in smelting the ore is what is known as the *Belgian process*, and nearly all the machinery has been imported from Europe, and is of the most perfect and improved kind. The ore is broken and conveyed to the top of a high building, where it is dropped into a powerful crusher worked by steam power, from whence it is run through different machinery reducing it into smaller particles, sieved and separated from foreign matter, until it reaches the ground floor, where it passes through a succession of washers and is made perfectly clean; after which it is calcined and placed in *retorts* and smelted, from which it comes forth pure metal. The calcined ore yields from sixty-five to seventy per centum of merchantable zinc. About fifty retorts are in operation, but extensive preparations are being made to greatly increase the number, and doubtless when this article comes before the public the number will be one hundred, at least. About fifty workmen are employed at present in the different departments, and the amount of wages paid out monthly is from fifteen to sixteen hundred dollars. All the buildings, the furnaces, and the necessary machinery are erected within one hundred yards of the main shaft, and although no water stream is in the immediate vicinity of the works, yet by powerful machinery the water is lifted up from a well in an immense and continuous volume, and the greatest economy of means to ends seems to pervade the entire establishment. The clay used for retorts is obtained in New Jersey, and the coal used is of the bituminous variety. About two hundred acres of fertile land surrounds the mines, located in a fertile district, and laborers can be obtained at reasonable wages.

The Lancaster county, or rather “Landisville Zinc Works,” may be said to be yet in their infancy, but in view of the almost exhaustless source of the rich ore and the intelligence, enterprise and perseverance of the pres-

ent proprietors—the Bamford Brothers—they must ultimately become one of the most valuable mining interests in Lancaster county or the State of Pennsylvania. The “spelter” or zinc metal manufactured here is second to no other in the country, and on comparing the ore with that obtained at the celebrated Phoenixville mines, the former is regarded as superior. If a long life devoted to zinc mining and smelting, and a thorough and practical knowledge of the capacity of mines and the quantity and quality of the product, so far as developed, can be any indication of final success, then we may reasonably look for it here. A promising vein of *lead* has been opened, and although mining for this metal may not be regarded as a special interest, yet there is a probability that it will eventually become a source of profit to the proprietors, and that its development may yet become one of the leading interests, in the mining operations of the county, the whole being merely a matter of *time*.

GENERAL MINERAL RESOURCES OF LANCASTER COUNTY.

The following paper, read by Mr. W. P. Bolton, before the August meeting of the *Linnean Society* relates chiefly to the southern portion of the county :

“Beginning with the extreme south-eastern portion of the county, and with the oldest rock formation, we find chromate of iron associated with various magnesian minerals. It is mostly embedded in serpentine which underlies a territory in the county of about thirty square miles known as the ‘Barrens,’ which, at sufficient depth, yields both minerals quite abundantly.

“During the war quite an extensive trade was carried on with the magnesite as well as the chromate, but since epsom salts and calcined magnesia have become so low in price it has been discontinued.

“North of and above the serpentine lays a bed of stratified gneiss, occupying a belt across the county about four miles wide, upon which rests a soil excellent for agricultural purposes. Along the northern side of this belt, and immediately adjoining a seam of trap, which separates the gneiss from the slate, is a stratum several hundred feet thick, which, in appearance, much resembles sandstone, being separated by parallel divisions into layers varying from two inches to two feet in thickness. It is extremely hard and compact and is a most excellent building material. On account of each face having two parallel faces it forms very close and solid masonry. For the same reason it requires but little dressing and is readily worked in the quarry. When it can be conveniently reached by railroad it will undoubtedly be extensively used. A number of the bridge walls and culverts on the Columbia and Port Deposit railroad are built of this stone.

“The ridge of slate constituting the boundary between Fulton and Dru-

more townships, is from 1,200 to 1,500 feet thick where it "crops out," or is exposed on the Susquehanna river. It extends in a north-easterly direction for miles through the county and gradually disappears from the surface; the most easterly point at which it crops out being about five miles from the aforesaid river. At a short depth under the surface, however, it extends almost the entire breadth of the county, being found in sinking wells in many different places. The only slate quarry that has been successfully worked, is on the bank of the river. Some slate has been taken from a quarry near Fairfield, but of inferior quality. That formerly taken from the Peach Bottom quarry in Lancaster county, was considered inferior to the York county slate, but since the former has been worked by its present owners, namely, the *Peach Bottom Slate Company*, with steam power pumps, and other mining facilities for deep working into the rock, it is found quite equal to that on the opposite side of the river. This company is now doing a large business, not only in manufacturing roofing slate, but also mantels, steps, watering-troughs, and various other articles for ornament and utility.

"The slate gradually passes through Talcose slate to another form of stratified gneiss, containing more magnesia and alumina than the former, and this shows a larger proportion of oxide of iron, until the valley extending from M'Call's Ferry to Penningtonville is reached, where iron ore is found in great abundance. A mine of superior iron ore, in this valley, near Muddy Creek, was worked during the Revolutionary war, but was afterwards abandoned until the close of the war of the "Rebellion," since which time large quantities of ore have been taken from it. It is now owned and operated, in part, by J. M. Johnston, Esq. A few years ago a large piece of magnetic iron ore was found in this valley, about two and a half miles from the river, on Mr. Thomas Robinson's farm, a part of which is in the museum of the *Linnæan* society. It is strongly magnetic and has sufficient power to attract and pick up nails. Since that time other pieces have been found in the same neighborhood giving evidence that it is there in considerable quantity. The iron mines in the eastern part of the valley have been worked for many years, and have yielded ore in abundance, and promise to continue to do so for many years to come. In the eastern part of this valley, the oldest limestone formation in the county is found. This has long supplied the lower or southern townships of the county with lime, and has done much towards bringing their soil to its present condition, and high state of cultivation. North of this is the copper mine and the Martic ridges, the former the most elevated ridge in the county. South of the Red-sandstone hills it is of almost pure hornblende, and seems to have been heaved up through the rocks of a later formation which surround it. It is in this rock that the largest body of

nickel ore in the county of Lancaster is found, being mostly in the form of a sulphide. Copper is also associated with it in greater or lesser quantities, hence the name of the ridge. What seems to be a continuation of the same ridge, through Providence and Martic townships, is of a very different rock, being nearly the same as that in the territory south of "the valley."

"North of this ridge, and separated from it by a stratum of sandstone, is a series of detached mound-like hills formed principally of quartz with more or less limestone. These hills extend from the Susquehanna river, in Conestogo township, through the northern parts of Martic, Providence and Eden townships, and the southern parts of Pequea, West Lampeter and Strasburg townships. Throughout their whole extent, the quartz rock largely composing them, contains more or less of the ores of silver, lead, zinc and traces of tin. Mines have been opened in several places but for some reason have never been worked to much extent. The most extensive one is in Pequea township, near Pequea creek. This is the one referred to in the June number of the *Lancaster Farmer*, where mention is made of a tradition that the mine was worked for lead previous to the Revolutionary war, and that its entrance was concealed at the time of the excitement resulting from the invasion of the British and its whereabouts had never since been discovered. From information obtained in the neighborhood, I have reason to believe that the part of the account relating to the concealment of the entrance is correct, but that it has been worked more or less ever since. Several years ago, the property on which it is situated, was purchased by a company of Philadelphia capitalists who sunk several new shafts and opened new galleries. After a few years the work was abandoned, although the quantity of *galena* found was larger than ever found before.

"The reason for the discontinuance of the work, was probably on account of the small *percentage* of the metal to the quantity of the rock to be "moved" in obtaining it. The silver is all found in combination with the sulphide of lead, the proportion being variously stated at from *five to ten per centum*. On the opposite side of the creek another mine has been opened, and yet another on the farm of Martin Hoover, in Providence township; but, after working it a short time, these were both abandoned. North of these last named hills, extends the great limestone basin of Lancaster county, which separates the northern from its southern parts, the geology of which has already been described minutely in a previous paper."

The southern portion of Lancaster county, referred to in the foregoing paper, is very "rolling," composed of many abrupt, mound-like hills, and although lead, copper, zinc, tin, chrome, magnesia and nickel have been found in it for an hundred years or more, yet nothing seems to have *paid*

except the iron, nickel, and the limestone. Formerly the chrome, in Fulton township, paid something more than expenses.

The following letters refer to the general trade in iron and coal :

FROM LAWRENCE COUNTY.

OFFICE OF SHENANGO IRON WORKS, }
NEWCASTLE, PA., Dec. 10, 1875. }

W. Hayes Grier, Esq. :

DEAR SIR :—Your favor came to hand during my absence. Some time ago I sent you a report of agriculture of this county, which I procured from Mr. Sample, who, I think, was quite competent to make it. At the same time, I forwarded reports of some of our blast furnaces.

Although times have been hard and failures heavy throughout the State, Lawrence county has been unusually fortunate, in that none of its manufactories whatever had to suspend. Although the mills and furnaces were, at times, idle, still, on account of the large number of buildings that were being erected, many of the men were kept steady at work. The furnaces in our county this year have been using the native ores in much larger quantities than ever before. New mines have been discovered, and old ones re-opened and worked. The ore of the Moffat Bank is a blue limestone ore, and is about ten inches thick. The red ores are found near Princeton, and also in Shenango township. This ore is much thicker than the blue ore—that at the Houke bank being from four to six feet thick. The richest ore is mined at the Frews bank, which, by analysis, will yield about 45 per cent. metallic iron. Messrs. Brown & Co., at Hope furnace, in Slippery Rock, and Messrs. Foltz & Jordon, Lawrence furnace, in Shenango, run entirely on these ores, out of which they manufacture a superior quality of metal. Our limestone, which is from 14 to 16 feet thick, has been worked very extensively during the year, and we can safely say that we supply the entire Shenango Valley. One firm mined and shipped some 70,000 tons of limestone, and the other quarries have all been very busy.

The numerous coal mines along Hog Hollow have been unusually busy, and have taken out very large quantities of coal. The New Castle Railroad and Mining Company furnishes all the coal used in the mills from their several mines.

Yours truly,

GEO. B. BERGER.

BUREAU OF STATISTICS.

FROM MERCER COUNTY.

SHARON, PA., Jan. 5, 1876.

W. Hayes Grier, Esq.:

DEAR SIR:—Yours of the 1st inst. received, with blanks from the Bureau of Statistics, to be filled by Bethel Coal Company and Fanny Furnace, in both of which I am interested. At our coal works we have a mining capacity of 400 tons per day, and employ 225 men daily; but during the last year we have not been able to do anything for want of orders at a price that would justify us in mining.

The Fanny Furnace has a capacity of 10,000 tons per annum, but was in blast only a part of the year, because we could not sell iron for what it cost to make it. At neither of these works could I make such a report for the past year as was contemplated by the Legislature, because, owing to the depressed financial condition of the country, we could do but little business.

Yours truly,

E. A. WHEELER

COTTON AND WOOLEN MILLS.

Harrisburg Cotton Mill Co.—Harrisburg, Dauphin county, Pa. Brown sheetings and shirtings. Production in 1874, 3,600,000 yards. Value, \$350,000. Whole number of persons employed, 280. Wages per day: 6 overseers and foremen, at \$2 75; 1 female, at \$2 75; 16 operatives, (men,) at \$1 35; 90 operatives, (women,) at 80 cents; 158 youths, at 50 cents; 5 machinists, at \$1 84; 4 laborers, at \$1 38. In operation 50 weeks during the year.

Crozer & Lewis.—Village, Delaware county, Pa. Cotton goods. Production in 1874, 1,200,000 yards. Value, \$126,000. Whole number of persons employed, about 100. Wages per day: 2 foremen, at \$3 00; 6 bosses, at \$2 25; 1 machinist, at \$2 50; 48 weavers, (10 men, 10 women and 28 youths,) at an average of \$1 00; 5 beamers and twisters, (men,) at \$2 00; 3 warpers, (men,) at \$2 25; 9 mule spinners, (5 men and 4 youths,) at an average of \$1 50; 18 throstle spinners, (youths,) at 62½ cents; 4 spoolers, (youths,) at 87½ cents; 6 laborers, at \$1 50. In operation 46 weeks during the year.

Samuel A. Crozer.—Upland, Delaware county, Pa. Cotton goods—plaids, stripes and gingham. Production in 1874, 4,036,400 yards. Value, \$475,312. Whole number of persons employed, 252. Wages per day: 5 carders, at \$1 60; 14 carders, (women,) at \$1 20; 3 carders, (youths,) at 90 cents; 3 mule spinners, at \$1 75; 9 mule spinners, (youths,) at 68 cents; 51 ring spinners, (youths,) 75 cents; 6 warpers, at \$2 63; 36 weavers, at \$1 66; 34 weavers, (women,) at \$1 50; 20 weavers, (youths,) at \$1 25; 8 beamers and twisters, at \$2 37; 2 beamers, (youths,) at 50 cents; 9 dyers, at \$1 66; 5 dyers, (youths,) at 68 cents; 22 winders (women,) at 90 cents; 8 machinists, at \$2 62; 13 overseers, at \$2 90; 4 laborers, at \$1 66. In operation during entire year.

Robert Patterson.—Chester, Delaware county, Pa. Cotton sheetings and drills, yarns and fillings. Production in 1874, 2,450,000 yards sheetings and drills; value, \$196,000, and 196,000 lbs. yarn, valued at \$40,960. Total value, \$236,960. Whole number of persons employed, 214. Wages per day: 1 machinist, at \$2; 1 carpenter, at \$2; 1 engineer, at \$2; 1 fireman, at \$1 50; 2 watchmen, at \$1 66; 5 speeders, at 85 cents; 3 card bosses, at \$2 33; 7 strippers, (youths,) at 58 cents; 4 women at drawing frames, at \$1 12½; 9 speeders, (women,) at \$1; 4 spoolers, (women,) at \$1; 3 spinning bosses, at \$1 83; 1 spinning boss, at \$2; 17 mule spinners, (2 men and 15

youths,) at an average of \$1; 45 spinners and doffers, (youths, at 66 cents; 15 spoolers, (women,) at 73 cents; 3 weaver bosses, at \$2 25; 67 spinners, (women,) at \$1; 13 spinners, at \$1 50; 1 cloth foreman, at \$2; 4 folders, (2 men, 2 youths,) at an average of 75 cents; 6 dressers and twistors, at \$2 50; 1 superintendent, at \$4. In operation 296 days during the year.

Richard Thatcher & Sons.—Darby, Delaware county, Pa. Cotton yarns. Production in 1874, 351,157 lbs. Value, \$86,344 77. Whole number of persons employed, 58. Wages per day: 1 foreman, at \$5 50; 1 boss, at \$3; 1 engineer, at \$1 50; 1 carpenter, at \$1 50; 1 spreader tender, at \$1 50; 2 strippers, at \$1 20; 10 carders, (6 women and 4 boys,) at 87 cts.; 9 spoolers, (women,) at 90 cents; 28 spinners and doffers, (youths,) at 47 cents; 2 warpers, at \$3; 1 teamster, at \$1 35; 1 watchman, at \$1 25. In operation 51 weeks during the year.

Remarks: "The foreman being paid a premium for all yarns produced above a certain quantity weekly, earned more, by \$1 50 to \$2 daily, than most men in like situations elsewhere."

Verlinden Brothers.—Darby, Delaware county, Pa. Kentucky jeans. Production in 1874, 420,000 yards. Value, \$92,400. Whole number of persons employed, 52. Wages per day: 1 engineer, at \$2 00; 2 dyers, at \$1 50; 1 teamster, at \$1 50; 1 watchman, at \$1 50; 1 carder, at \$2 50; 6 youths in card room, at 86 cents; 1 loom boss, at \$2 50; 28 weavers, (women,) at \$1 00; 1 beamer and twister, at \$1 50; 3 spinners, at \$2 00; 3 piecers, (youths,) at 37 cents; 4 finishers, (youths,) at 75 cents. In operation 11 months during the year.

D. Trainer & Sons.—Linwood, Delaware county, Pa. Cotton goods and yarns. Production in 1874, 825,000 yards fabrics and 400,000 pounds yarn. Total value, \$440,000. Whole number of persons employed, 229. Wages paid employees: men from \$7 50 to \$12 00 per week, or from \$1 25 to \$2 00 per day; women \$5 00 to \$7 50 per week, or 83 cents to \$1 25 per day; youths \$3 00 to \$5 00 per week, or 50 cents to 83 cents per day. In operation 250 days, of 10 hours each, during the year.

Samuel Bancroft, (Todmorden Woolen Mills.)—Media, Delaware county, Pa. Beaver cloths. Production in 1874, valued at \$250,000. Whole number of persons employed, 104—73 men and 31 women.

Irving & Leiper.—Chester, Delaware county, Pa. Cotton yarns. Production in 1874, valued at \$170,833 49. Whole number of persons employed, 86. Wages: 3 foremen, at \$3 00 per day; and operatives, 22 men, 26 women and 35 youths, at an average of \$1 50 per day, of 10 hours. In operation during the entire year.

D. Ripper, (Highland Woolen Mills)—Near Gettysburg, Adams county, Pa. Cloth, satinete, lindsey, carpet, &c. Production in 1874, valued at \$5,221 50. Whole number of persons employed, 9. Wages per day: 1

foreman, at \$1 00 ; 1 spinner at 75 cents ; 1 carder, (apprentice,) at 20 cents ; 1 dyer, at 75 cents ; two twistors, (girls,) at 30 cents ; 2 weavers, at \$1 00 ; 1 finisher, at 75 cents ; 1 laborer, at 75 cents. In operation from 9 to 10 months during the year.

Shaw & Esrey.—Chester, Delaware county, Pa. Jeans and doeskins, (cotton and wool mixed.) Production in 1874, 1,833,930 yards. Value, \$348,446 70. Whole number of persons employed, 174. Wages per day: 1 manager, at \$3 50 ; 2 engineers, at \$2 33 ; 2 boss carders, at \$3 25 ; 4 loom bosses, at \$2 33 ; 2 cloth finishers, at \$2 17 ; 5 spinners, at \$2 32 ; 3 dyers, at \$2 28 ; 18 laborers, at \$1 50 ; 37 youths, at 63 cents ; 10 weavers, (men,) at \$1 50 ; 78 weavers, (women,) at \$1 40 ; 12 weavers, (youths,) at \$1 17.

J. P. Crozer's Sons, (J. Lewis Crozer, Geo. H. Crozer, Robert H. Crozer.)—Upland, Delaware county, Pa. Cotton goods. Production in 1874, 104,063 pieces of cloth, averaging 45 yards each, (4,682,835 yards.) Value, \$562,775 47. Whole number of persons employed, 395. Wages per day: 8 weaving bosses, at \$2 50 ; 71 weavers, (men,) and 67 weavers, (women,) at \$1 38 ; 16 carders, (men,) and 25 carders, (women,) at \$1 45 ; 128 spoolers, &c., (men, women and youth,) at an average of 75 cents ; 31 winders and reelers, (women and youth,) at 85 cents ; 12 beamers and twistors, (men,) at \$1 52 ; 35 laborers, at \$1 65 ; 2 clerks, at \$2 85. In operation during the year, 264 days.

Remarks: "Used from January 1 to December 31, 1874, bales of cotton as follows: 3,311 bales, weight, 1,514,022 pounds. Cost of same, \$230,395 74. Yarn spun, 952,963 pounds. Wages paid during the year 1874, \$138,765 15. Average wages of employees per month, \$30 45."

THE LANCASTER COTTON MILLS.

Perhaps the most important industries in the city and county of Lancaster, are those connected with the cotton mills, or "cotton factories," as they are usually called. Although a cotton factory had been in existence at "Rockland" on the Conestoga, from an early period (hence the "old factory road.") Yet it was not until about the year 1844, that a large company was organized, and a large building erected and equipped, in order to carry the "new idea" into practical effect.

Without adverting to the original companies and stockholders of these mills, or to the adverse circumstances under which they changed hands, and came into the possession of the present proprietors, we will mainly apply ourselves to their *present status* ; although, in the great dearth of remunerative labor existing in the country, the Lancaster cotton mills do not

employ the same number of operatives now, that they did some years ago. Still, for a quarter of a century they have furnished almost constant employment to a large number of our fellow citizens, and especially to the poor ; and also to the *female* portion of our increasing population.

These mills are six in number : three of which, called the Conestoga mills, are located on the east and west sides of South Prince street, between German and Conestoga streets, and are numbered respectively, 1, 2 and 3. No. 1 is owned and run by F. Shroder & Co. ; Nos. 2 and 3, by John Farnum & Co. ; No. 4, situated on Beaver street below Hager, is owned and operated by Shenk, Bausman, Carpenter & Co. The Fulton mill is located on North Duke street, corner of East Lemon, and is the property of Geo. Calder, Jr., and the Allendale mill is at No. 336, East Chestnut street, and is under the proprietorship of Geo. Calder, Jr. & Co. The "Conestoga mills," are large structures, three and four stories high, and are of nearly equal capacity as a whole, differing only in some of their details.

Whatever arguments may be urged against the *abuse* of large labor-saving combinations, aided by machinery, in order to cheapen fabrics that are objects of daily consumption by the community, as society is at present constituted, their *use* cannot well be dispensed with, and wherever they may happen to be located they afford support to that part of the people, who, otherwise, no doubt, might be altogether destitute of employment. It only becomes apparent what use a cotton mill is to a special community, when we learn what, and how much material it consumes during the year ; what it produces and contributes to the comfort of the human family, and the amount of money in the form of wages, or the purchase of supplies, is circulated among the various other industrial interests that happen to be in its vicinity. Of the present cotton mills of Lancaster city, that which is known as No. 1, and owned by F. Shroder & Co., is the senior. This mill had its origin about thirty years ago, and although its originators may never have realized any profit from it, if they did not even "sink" their original investment in it, nevertheless during those thirty years it has been a great source of support to a large number of employees, who in turn became profitable patrons to the mercantile, mechanical and agricultural interests of the community ; and in various ways, it has realized the ancient sentiment illustrated by "*The plow, the anchor and the shuttle—United they stand and divided they fall.*"

This mill employs about four hundred hands ; runs about 280 looms, and about 12,000 spindles. The capacity of the main or driving engine is 225 horse-power, and the mill has the capacity to turn out about 10,000 yards of sheetings and nankeens daily, or 3,650,000 annually ; consuming in its manufacture about 1,248,000 pounds of raw cotton annually ; and the monthly wages paid to employees, of all kinds, is about \$9,500.

The whole five cotton mills in the city of Lancaster, now in successful operation, run 41,000 spindles, and employ, when running on full time, about 1,300 hands; making tickings, fine brown, or unbleached muslins, jeans, genuine nankeens, drillings, cotton flannels, and 10-4 and 4-4 sheetings. The goods from these mills are deservedly popular and command a ready sale.

There is still another mill on the Conestoga, in Lancaster township, not included in the above, called the "Rockland mill," which employs from 75 to 100 hands, and runs about 3,000 spindles. For a more full detail of the operation of these mills, and the amount of the various kinds of material they consume, we refer the reader to mills Nos. 2 and 3.

The following, in part in reference to these mills, is from a recent number of the *Philadelphia Commercial and Manufacturer's Gazette*, and so far as it goes, conveys as comprehensive an idea of their history, capacity and use, as any we can give:

"One of the largest, most important and flourishing enterprises in the interior of the State, is found in the city of Lancaster. It is a prevalent opinion that all really large establishments engaged in the manufacture of cotton goods are confined to the eastern States. Nothing could be farther from the truth. The Conestoga steam mills of Lancaster will compare favorably with those in New England.

"This enterprise was started about twenty-five years ago, and after a varying fortune became, in 1857, the property of Messrs. John Farnum & Co., who, besides the establishments at Lancaster, have an office and watercombs at No. 233 Chestnut street, Philadelphia. The mills proper are comprised in two large buildings, numbered respectively 2 and 3. These buildings are 66 by 206 feet, in size three stories high, and built substantially of brick. The motive power is steam, furnished by about twenty large boilers to drive two engines of about 800-horse power. These powerful machines are worth a visit from motives of mere curiosity. They are kept in admirable condition, and run as smooth as "clock work." One of the driving wheels, which is also a balance wheel, weighs thirty-three tons, and runs with a velocity which, if going along the ground, would bring it to Philadelphia, a distance of about seventy miles in forty-five minutes. More than five thousand tons of coal are consumed in these two mills per annum for fuel in creating steam in the twenty boilers employed. About 3,500,000 pounds of raw cotton are used annually. The goods manufactured are tickings and sheetings, of which these mills turn out 21,000 yards per day. It is almost unnecessary to say that a large amount of capital is required to accomplish these results. Some of the appliances are also truly wonderful. For instance, one of the main driving belts, required one hundred and thirty hides to make it."

And here in the same category may be inserted an equally wonderful list of items that are annually used in these two cotton mills, which has been kindly furnished by the chief superintendent.

Memorandum of quantities of materials used at Conestoga steam mills Nos. 2 and 3, per year: 96,000 pounds of starch and 950 barrels of flour, for starching or "sizing"; 17,500 pounds of indigo, 50,000 pounds of copperas and 540 bushels of lime, used in coloring; 3,950 gallons of sperm oil, used for lubricating purposes; 700 pounds of tallow; 90 barrels of soap; 7,500 pounds of belt leather; 50 dozen of sheep-skins and 16 dozen of calf-skins, for small belting and gearing; 120,000 feet of lumber, for repairing woodwork; 158,000 pounds or 79 tons of castings for repairs to machinery; 40,000 yards of burlaps for baling; 20 tons of wrought iron for general repairing; besides sundry other supplies amounting annually to \$10,000. Six hundred gallons of water are used per minue, when the mills are in operation; 630 looms and 24,000 spindles are run in the two mills; 800 workmen of different kinds are employed at this time, and \$20,000 monthly are paid for salaries and wages. The amount invested in these two mills is about \$600,000. "The repair shops alone is quite a large establishment, and one that would be considered an extensive enterprise by itself, as it requires a twenty-five horse power engine to drive the machinery. The cotton storerooms, of which there are two, are buildings 30 by 150 feet, capable of holding about twelve hundred bales each."

"The bales of cotton are first cut open and the contents spread out about six inches thick upon the floor. As it comes from the 'gin' it is only partially clean. It is now first passed through the 'picker,' which takes out the remaining seeds and separates the lumps. It then goes through another machine called a 'lapper,' leaving it in large rolls. These are taken to the carding machines of which there are one hundred and seventy-five in the two mills, and leaves there in a long continuous roll, about an inch in diameter. These are taken to the railway drawing-frame, and then to various other drawings-frames until they become 'roving,' a sort of soft thick yarn. The *roving* is then put in the spinning machines, which are both spinning frames and 'mules,' the thread having thus been drawn out to one-forty-thousandth part of the thickness it was when it left the *lapper*. Some of the yarn goes to spoolers, warpers, and reelers, to be 'beamed.' It is then passed through the 'dressers,' to be starched and made ready for the warp of the fabric." Only those familiar with the operations of a cotton mill can appreciate the difficulties encountered, not alone in the mechanical appointments, but also in the discipline of the operatives, in order to keep the goods up to a certain grade, and economize in power, in material, and in means.

“The stoppage of these mills would be a public calamity. Messrs. Far-
num & Co. may be looked upon as public benefactors, and it is gratifying
to know that their fabrics are so popular, and their enterprise so flourishing.
We are indebted to Mr. S. S. Spencer, the able manager, for many items of
interest in regard to this business. In addition to his pressing duties in
the mills he finds time to take a part in other leading enterprises which bene-
fit the city, and may be classed with the most public spirited men of the
age.”

FIRE-BRICK.

Harbison & Walker, Pittsburg, Pa., manufacturers of fire brick and tile. Production, 3,000,000 bricks per annum. Value, \$85,000. Whole number of persons employed, 70 men and ten boys. Wages per day—1 superintendent, (member of firm,) at \$8 33; 1 assistant superintendent, at \$3 00; 1 burner, at \$2 25; 1 chief engineer, at \$3 00; 1 assistant chief engineer, at \$2 00; 1 carpenter, at \$1 75; 1 watchman, at \$1 75; 3 moulders, at \$2 50; 3 pressers, at \$3 00; 1 setter, at \$1 75; 1 fireman, at \$1 50; 1 clay washer, at \$1 75; 1 mill feeder, at \$1 75; 1 clay temperer, at \$1 75; 10 boys, at 83 $\frac{1}{3}$ cents; 2 carters, at \$1 50; 2 teamsters, at \$1 50; 10 laborers, at \$1 50; 1 book-keeper, at \$3 33 $\frac{1}{3}$; 4 apprentices; balance of men at clay-bank, wages not given. Works in operation during 280 days of the year.

ZINC.

Lehigh Zinc Company, South Bethlehem, Northampton county, Pa., miners of zinc ores, and manufacturers of oxide of zinc, spelter (metallic zinc) and sheet zinc. Production in 1874—zinc ores mined, 16,263 tons.

Oxide of zinc, 3,438,400 lbs. ; value.....	\$240,688
Spelter, 3,703,746 lbs. ; value	343,621
Sheet zinc, 1,806,628 lbs. ; value.....	182,313
	<hr/>
	766,622

Whole number of persons employed, 575, as follows : 530 men and 45 boys. Wages per day : 12 foremen, at \$3 50 ; 3 time keepers, at \$2 00 ; 16 engineers, at \$1 80 ; 7 firemen, at \$1 60 ; 4 machinists, at \$2 90 ; 8 blacksmiths, at \$1 85 ; 5 carpenters, at \$2 00 ; 1 bricklayer, at \$2 90 ; 5 coopers, at \$1 70 ; 24 carters, at \$1 40 ; 87 miners, at \$1 75 ; 40 ore dressers, (boys,) at 90 cents ; 90 laborers, at \$1 20 ; 80 oxide makers, at \$1 45 ; 130 spelter makers, at \$1 80 ; 18 sheet zinc rollers, at \$2 00 ; 5 boys. Works in operation during the entire year.

PAPER MILLS.

LANCASTER COUNTY.

The following sketch of this increasing and improving industrial interest is condensed from a paper on the subject, by J. M. W. Geist, a joint proprietor of a paper mill, and perhaps as reliable authority as any in the county or elsewhere:

"Of the early history of paper making in Lancaster county we have very little definite information. Fifty years ago the late John Triewitz, of Lancaster city, had a paper mill at Ephrata. At that time he was manufacturing 'pasteboard' by the old and tedious hand process. He also manufactured print paper, and in later years supplied Mr. Jno. Bear with paper for the *Volksfreund*. Of course the paper was all made by the old-fashioned hand process. The mill was subsequently converted into a saw-mill."

About thirty years ago B. B. Eshleman was engaged in the manufacture of hand-made paper, at what was known for many years as "Eshleman's Mill," on the west branch of the Octoraro, in Bart township. We are unable to fix the exact date of this enterprise. The manufacture, however, was limited, and not a financial success. In December, 1854, Jno. R. Bitner and others purchased the "Old Fulling Mill," on the Conestoga, at Eden, from D. G. Swartz, and converted it into a paper mill. They procured a new cylinder paper machine, and had their rag engines constructed at the mill. In the fall of 1855 they began operations under the superintendency of Baltzer Lipp. The mill was calculated for the production of 1,500 pounds of paper per day, but it was soon found that the power was not sufficient for such a result. In 1856 the mill passed into the hands of Kurtz & Lipp, all the other parties withdrawing. In 1859 the enterprise failed, and in 1860 the mill was purchased by the late Eml. Shober, who run it very successfully for six or seven years, his being the first pecuniary success in paper making in Lancaster county. He supplied the deficiency in the water power with a steam engine, and thus doubled the production. During the greater part of this time George Erhardt was the foreman of the mill, and John A. Shober was the business manager, and its success was chiefly due to them.

"In 1866 Eml. Shober purchased the water-power and grist and saw-mill on the Conestoga at 'Slackwater,' and converted the buildings into a

paper mill. In 1867 the machinery of the Eden mill was all moved to the Slackwater mill, where it now runs eleven rag engines and two paper machines, one a Fourdrinier and the other a cylinder. Emanl. Shober having since died, the establishment is owned by his heirs, and John A. Shober is the superintendent. The product has thus far been confined to book and news print of 'machine finish,' and an excellent quality of heavy manilla."

"In 1855, Benj. Snavelly and Fred'e Myers, bought the water power and turning shop at Camargo, in Eden township, and converted it into a paper mill, under the superintendence of the late C. H. Brenneman. It consisted of two rag-engines and a seventy-two-inch cylinder paper machine. It was soon found that the water power was insufficient to turn out a profitable product, and auxiliary steam power had to be used. The paper was sold by the 'Camargo Manufacturing Company,' at its warehouse, in the city of Lancaster. Owing to the great distance the coal, the stock and the manufactured product had to be transported from the railroad, and the low price of paper at that period, the enterprise did not prove profitable, and it was abandoned in 1862 and the machinery sold—some of it having been purchased and placed in the Shober Mill, at *Slackwater*."

In the fall of 1865 a company was organized in Lancaster, under the general manufacturing laws of the State, for the purpose of engaging in the manufacture of printing paper. The enterprise originated with the newspaper publishers of Lancaster, and their primary object was to secure increased accommodations in their supply of paper, but their plan of operations was subsequently changed and materially extended. The company purchased the "Binkley Mill," property, at "Binkley's Bridge," on the Conestoga. The new buildings were erected, the machinery in place and the mill put in operation in September, 1866. The buildings are substantial stone structures, and the machinery was all put in new and of the best quality. It consists of three large rag-engines, one seventy-two-inch Fourdrinier machine, and a four-roll calender stack, for super-calendering book paper, with the usual additional appliances of a modern paper mill. A reservoir of spring water adjoining the mill, sixty feet square and twelve feet deep, is one of the best in the country. The establishment is now known as the 'Printers' Paper Mill,' and is run exclusively on book and news print, of machine and super-calendered finish. The establishment in the main is owned by the proprietors of the Lancaster city newspapers—the *Examiner*, the *Express*, the *Intelligencer* and the *Volksfreund*—the Bitner Brothers, and since the original company was formed has undergone some modifications of proprietorship. Adam H. Lindsay, formerly of Greenville, Conn., has the management of the practical details of the mill.

The practical details of the various industrial interests of Lancaster county would fill volumes themselves, and probably a knowledge of them could not be accurately obtained, even under *authority*; therefore, they must be gradually developed through the slow process of time and patiently persevering inquiry, and to that process we commit them.

ADAMS COUNTY.

Conowago Paper Company.—Manufacturers of printing paper, from straw. Reported by E. W. Stahle, president of company, Mummasburg, Pa. Production, 2,600 lbs. per day, for 250 days in the year. Average price per pound, nine cents. Whole number of persons employed, 18, exclusive of two teamsters who are engaged in hauling stock to and from the mill and railroad depot.

Wages per day: 1 superintendent, at \$8; 1 machinist, at \$3; 1 machine tender, at \$2; 3 engine men, at \$1 75; 1 carpenter, at \$1 75; 2 firemen, at \$1 50; 21 aborers, at \$1 25; 2 apprentices, at 87½ cents; 3 assorters, (women,) at 75 cents; 1 finisher, at \$2.

Remarks: "Power, water and steam; consumption, per day, 5,600 lbs. of straw; 3 tons of bituminous coal, or about 7 cords of oak wood; 15 bushels of lime; of soda; ash and chlorine, about 1,800 lbs., besides clay, alum, rosin, sulphuric acid, etc. This is the only paper mill in the county.

UTILIZATION OF COAL WASTE.

A large percentage of coal mined in Pennsylvania is unfit for market, and goes to "waste." This is particularly true in regard to the anthracite coal regions of the State. The accumulations of "waste" amounts, in the aggregate, to many million tons. These vast accumulations can now be utilized, thereby adding many million dollars to the coal wealth of Pennsylvania.

During the past year, Dr. J. R. Hayes, of Harrisburg, has succeeded in perfecting a machine that utilizes the waste referred to, by a process alike simple and cheap. The cost of the machine and all the apparatus connected with it is about \$2,500.

One of these machines on exhibition at Harrisburg, turned out coal at the rate of one ton per five minutes, and at a cost not exceeding 70 cents.

The cementing elements used by the Doctor are solid pitch, lime and clay in small proportions, which he combines with the dust or "waste" to the extent of 5 per cent., and the mixture passing through moulds in the forming machine, comes out in the shape of hard oval balls ready for use. Balls made either from bituminous, semi-bituminous or anthracite burn as long and give as much caloric as the pure coal.

The Doctor's theory is, that when pitch and lime are blended under heat, an asphaltic cement is formed, the strongest that can be devised for permanently binding together the small particles of carbon. This renders the ball or lump completely impervious to moisture, a condition natural coal does not possess. The use of clay in the composition is for its well known property of contraction under heat, which keeps the lumps hard under combustion. The whole process is so complete, and the machinery to mould the mixture so simple and economical that in view of the vast waste in the production of our coal, the matter should engage the attention of economists, coal consumers, and coal operators, throughout the country, and particularly in Pennsylvania.

RESTRICTIONS UPON TRADES.

The following bill, introduced in the Senate of Pennsylvania, by Senator Cooper, should it become a law, will open the doors of our mechanical institutions to all who may desire to enter them :

AN ACT to protect the children of this Commonwealth in their right to acquire useful trades.

SECTION 1. *Be it enacted by the Senate and House of Representatives of the Commonwealth of Pennsylvania in General Assembly met, and it is hereby enacted by the authority of the same,* That any person who shall, either in an individual capacity or as a member of any association, attempt, by any unlawful means whatever, to prevent any mechanic, employer or person having charge of any manufacturing business from taking as an apprentice any minor whose parents or guardians are desirous of apprenticing said minor, or where such minor is without parents or guardians, and desires to apprentice himself or herself, shall be guilty of a misdemeanor, and on conviction thereof in the proper court of quarter sessions shall be sentenced to pay a fine not exceeding one hundred dollars, or to imprisonment not exceeding three months, or both or either, at the discretion of the court.

SECTION 2. That all acts or parts of acts inconsistent with this act be and the same are hereby repealed.

On the second reading of the bill Senator Cooper delivered the following instructive address :

Most of the Senators will remember that this bill was introduced last winter, and, after some discussion, received the almost unanimous approval of the body. It then went to the House, passed to the second reading, and was lost, not because of any unfavorable action, but because of the inability of that body to reach the bills in their order before the time fixed for final adjournment. It is presented again pursuant to the joint resolve that all legislation must start afresh. Knowing the favor with which it has been received, I would not now attempt further discussion if there were not a number of new Senators present, and if I had not acquired additional information well calculated to confirm the favorable views of those who are already upon the record in its favor. For one I am ready to give the most radical endorsement to the proposition that a man's labor should be worth as much as will comfortably maintain himself and family, enable him to educate his children, and with economy enable him to lay by enough to support himself and wife when their laboring powers have failed. Any demand having this object in view has justice behind it, and such protection should always be extended to American labor as will sustain it. But

this basis, however natural and just, has never been fully reached. It has been more closely approached in this country than in any other, but even here, where labor is in brisk demand and prices apparently fair, it is only the small family which, as a rule, can live upon the labor of the father, and it is only where families are aided by the labor of one or more of the children that the younger can be educated and the aged rest in comfort. The theory is good, but sickness and business suspensions make sad breaks whenever its practical application is attempted.

Massachusetts is a State where labor is in many respects not unlike that of Pennsylvania. There is almost an equal variety, and the wages paid in all manufacturing and mechanical branches have been relatively the same. The governing powers in Massachusetts have long given much attention to the gathering of statistics, especially as they apply to education and labor. I have been favored with the Sixth Annual Report of its Bureau of Statistics and Labor, and shall briefly apply the facts gathered therefrom to the subject in hand. The arguments in the report are all directed to the subject of education, but the facts remain the same, and they well illustrate the status of labor in the most enlightened and most thrifty State of the Union. The investigations extend to 64 branches of occupation, nearly all of them mechanical, and comprise 65 per cent. of all the actual wage laborers in the Commonwealth, so that there can be no doubt as to the reliability of the averages. They embrace all of the building trades, boots, shoes and leather, metal workers, mill operatives, out-door employments, shop trades, etc. I need not reproduce the many tables given; the deductions are sufficient. As a rule the unskilled wage laborer has a larger family to support than his skilled co-laborer—thus demonstrating the truth of one-half of the axiom, "A fool for luck and a poor man for children." The unskilled workman's average family size is always in excess of the general average, which is $5\frac{1}{10}$. Thirty-five per cent. of the heads of families are able, by their *individual* earnings to support their families' needs, while 65 per cent. rely upon the assistance of wives and children, this estimate being based upon an investigation of the condition of 397 temperate families. The unskilled metal workers and operatives are in every case assisted, as are nearly all of those engaged in out-door employments. Of the skilled workmen 56 per cent. get along alone; of the unskilled but 9 per cent., and yet the skilled laborer gets but 5 per cent., while the unskilled gets 19 per cent. from his children's labor. Throughout Massachusetts there are two children employed in unskilled branches to one in the skilled. The reverse should be the rule. The money value of child labor is strikingly shown. The children furnish on an average about one-quarter of the entire earnings of all the families, while to the unskilled they furnish 40 per cent. Where apprentices are employed in skilled branches, one of a family of five contributes 20 per cent.

to its support. Of the 397 heads of families referred to 34 are in debt, 141 make both ends meet, while 222, or 55 per cent., save money. Those assisted by their children show the greatest number of money-savers, and the skilled workmen, of course, exceed the unskilled in the power to save. The fact everywhere stands out that the head of a family of five, who receives less than \$600 annually, *invariably gets in debt*.

Here is a summary of the conclusions :

1. That in the majority of cases workmen in Massachusetts do not support their families by their individual earnings alone.

2. That the amount of earnings contributed by wives, generally speaking, is so small that they would save more money by staying at home than they gain by outside labor.

3. That fathers rely, or are forced to depend upon their children for from one-quarter to one-third of the entire family earnings.

4. That now children under fifteen years of age supply by their labor from one-eighth to one-tenth of the total family earnings.

5. That more than one-half of the families save money, less than one-tenth are in debt, and the remainder make both ends meet.

6. That without children's assistance, other things remaining equal, the majority of families would be in poverty or debt.

7. That savings by families with the labor of fathers alone are made in every branch of occupation investigated, but that in only a few cases is there evidence of the possibility of acquiring a competence, and in those cases it would be the result of assisted or family labor.

8. That the higher the income, generally speaking, the greater the saving, actually and proportionately.

9. That the average saving is about three per cent. of the earnings.

The statistics of Massachusetts do not show the number of callings from which apprentices are excluded and in which they are limited; they only show the value of children to a family, and the especial value of the oldest child when engaged in some skilled calling. But I have had a double object in introducing these figures: to show their immediate value to parents if they expect to keep out of debt and educate the younger members, and the absolute folly of any married man, whether attached to a trades union or not, favoring the exclusion of, or any unjust restriction upon, the number of apprentices in any manufacturing or mechanical calling. The fact stares them in the face, more plainly in Pennsylvania than in ever-thrifty Massachusetts, that half of their number, when skilled, must get into debt; that nearly all of their number, when unskilled, must end a life of hard labor in poverty and debt. And a fact, even worse than this, is held in bitter reserve: without skill, without knowledge in some useful calling, their

children, when grown, must meet a fate worse than theirs, for the condition grows from bad to worse with accelerated velocity.

Let us turn now to the status of affairs in Pennsylvania. Our Bureau of Statistics is as yet in its infancy. It is destined to be a most useful department of our government, but in the few years since its organization time has not been afforded to gather and publish even the leading facts bearing upon Pennsylvania's varied manufacturing and mechanical industries. Yet, from the incomplete data already at hand, very important facts can be gathered, and it requires no stretch of the imagination to show their application to this apprentice bill. According to the census of Pennsylvania, made in 1870, the population was 3,521,951, of which there were 679,507 males between the ages of 18 and 45, and 540,133 male minors between the ages of 5 and 18. In mining, manufacturing and railroading, 476,436 adults were engaged to 51,826 youths of both sexes. We had 37,200 mechanical and manufacturing establishments, employing 319,487 hands, of which number 256,543 were male adults, 43,712 female adults, and but 19,232 of the youth of both sexes—*fifteen adults to one minor*, or but one youth to five families, who, in any way contributed to their own or the support of their families. Remember, these figures were gathered in 1870, in flush times, when there was active demand for all kinds of labor. Of 80,760 persons employed in mining operations, 9,646 were boys, or one boy to nine men. Of 12,281 engaged in cotton manufactures, 3,221 are youth of both sexes, or one in four, and in the manufacture of woollen goods the proportion is about the same. It will be seen that in the manufacture of cotton and woollen goods our youths have no proper complaint to make, the proportion being fair, about one in a family of five aiding the father in its support. In mining double the present number could and should be admitted. But in the mechanical and united mechanical and manufacturing branches the disproportion is startling. My calculation is, from all the information to be acquired in our Bureau of Statistics, that *but one male minor is employed to twenty-five men*, while in the stores of the State there are twice as many clerks as there are apprentices to the mechanic arts, and the number of female domestic servants exceeds seven times over the number of boys engaged in useful trades. If we make every allowance for age, wealth, pride, and other causes calculated to interfere with employments, there is still in this State *an army of one hundred and fifty thousand boys* awaiting the opportunity to acquire useful trades. With these home facts constantly staring us in the face, is it not wonderful that the system which produces them has thus far escaped successful assault?

And to what do we owe this condition of affairs? Plainly to the restrictions placed upon our youth by the very worst of all the regulations known to the trades unions. Admit their right to combine for protection, as we

tacitly admit the right of combination in other branches of business—admit that the incentive for combination is greater with them than with lawyers to keep up their fees, or merchants to regulate prices, or speculators to “run a corner”—admit that any and all of the organizations which excuse the formation of trades unions are based upon less palpable necessities, and there yet remains no argument against a measure which looks only to the protection of the children of the State in their right to acquire useful trades. The time may come, and it is probably not far distant, when “rings” in business will be assailed with even greater force than “rings” in politics; but the first step, whether any other be taken or not, should be directed against any form of conspiracy which is calculated to destroy the present and future usefulness of our children. And such a step is not directed against the laboring man. It is in his highest interest, since all who would fulfill God’s command to multiply, are directly interested. The married in our trades unions have too long permitted the single and the unsettled to apply restrictions which are in effect at war with all the world save themselves. Some are persuaded to enter into a conspiracy against their own children in the belief that they will reap immediate profit, but if they will consult the figures they will see how grossly they miscalculate. Others yield for the sake of the unity of labor, from pride in organization and from a general spirit of resistance to capital, forgetting that there is no higher union than that of the family; that there can be no nobler pride than that which directs itself toward the usefulness of one’s children; and that there is no capital equal to that contentment which accompanies the realization that we have done the best possible for those who are to follow.

There is nothing manly in a regulation which assails childhood, and the only reflection which shades the satisfaction felt in the acquirement of my own trade as printer is the fact that those who boast a knowledge of “the art preservative of arts” were among the first to place this restriction upon our youth, and constitute the only organization represented by committee in the lobbies of this Senate in opposition to this bill. In all the great towns and cities of this Commonwealth they have unions, the prominent regulation pointing to the exclusion of apprentices. The regulation, in most instances, says that there shall be but one apprentice to seven journeymen, but as the foreman controls his room almost absolutely, the number is greatly less, and when one is taken on it is done with a view to appease some married member of the union, and prevent him from striking a manly blow against the thralldom placed with only lessened weight upon his family. Take the leading editors of the State, and they cannot place any of their own children in their own offices to acquire a trade, proficiency in which is necessary to the successful conduct of the business. The same is true of nearly one hundred callings, as pursued in all of our great industrial centres.

Happily it has not extended to mining and to the manufacture of cotton and woollen goods. These miners and operatives, from daily experience, realize the truth of the statistics which I have quoted, but still the restriction partly falls upon them, and upon every farmer, since, wherever there is a surplus of children they are debarred from acquiring trades.

Labor unions, carried on in the right spirit, may be productive of immediate and future good, but to maintain this object they must blot out any oppressive feature. Labor must be free, and its hand should be the last to apply a shackle. It is criminal to withhold a privilege which inherently belongs to our youth. It is a theft of youthful rights—a robbery of the next generation in the mad belief that it will profit this one. Even if it were true, it were better for this generation to suffer from competition than that “the seal of disqualification should be set by it upon those coming after.” Let us restore the apprentice system—let us at least attempt to return to it by giving legal protection to our youth in their right to acquire useful trades. It is an inherent right, and it is unmanly to deny it. The unmarried journeyman does not need the actual, much less the imaginary “pound of flesh” thus extracted from his married co-laborer, and if he will not willingly loose his grasp the law should compel him to do so. Our greatest want is skilled labor. We have a magnificent school system, to the support of which we annually contribute millions. We educate our boys, and at the age when they should enter upon the more useful duties of life they find every door to skill slammed in their faces. Upon every door of every workshop in every great business centre of the State is marked with painful plainness, “No apprentices need apply.” Then where do they go? They go to swell the clerkships and places where the knowledge which the State so carefully gave them may find some appreciation. This is true of some, but the figures show how false it is of the great majority. Those which I have quoted in the main show that this path is not of their choice. If pride in parents or children prevents the seeking of useful trades, surely there would be more pride in release from labor as applied to girls than to boys, and yet we find in our own State the servant girls to exceed seven times over the apprentice boys. How can it be pride alone when the wage of the average clerk nowadays does not equal half that realized by the skilled mechanic?

We want skilled labor, and we must have it if our people are to continue their progress—rather, if they are to avoid ruin. The time has come, and I believe it has come to stay, when skill of hand is necessary to success in life. Take a registry of the tramps who daily march past your doors, and see how many are skilled laborers. Go to your prisons, and you will find less than four per cent. of men there who have ever acquired a handicraft. With the present restrictions upon the trades, in this State alone, it takes

but five years to recruit and train an army of one hundred thousand idlers, and these are the men who now defy the wisdom of legislation. Bad as they are, they are more "sinned against than sinning." A false system of labor has made them what they are, and that system is extending its paralytic touch to every State of the Union. Massachusetts, quoted as the most favored State in point of prosperity for her workmen, quoted everywhere as the most temperate State, is yet a victim to this system, and as a result shows thirty-three per cent. more criminals than Ireland with all of gay Erin's love for whisky. I tell you, and the truth is as old as the world, that idleness opens the widest door to vice and crime. Let us check it by opening up every avenue to trade. Let us by solemn law break down the barriers placed in the ways of our boys. Let us make labor free to all who are strong enough to undertake it, and instead of suffering from, it will profit by the competition. Let us remember the recent utterance of Gladstone "that the best way to elevate labor is to keep our children in it."

The measure which I propose is the first and most direct step to an object which should be resisted by none, and which, from its inherent justice, should claim the favorable consideration of all.

RAILROAD LABOR REPORT.

NAME OF COMPANY.	President.....	Pay per day	Vice president.....	General manager.....	Pay per day	Chief engineer.....	Pay per day	General ticket agent..	Pay per day	Gen'l Superintendent.	Pay per day	Gen'l Master Mech'ic..	Pay per day	General architect.....	Pay per day	Gen'l purchasing ag't.	Pay per day.....
Bellefonte and Shaw Shoo.....	1	\$2 56								1	\$12 00						
*Bell's Gap.....	1									1							
Buffalo, Corry and Pittsburg.....	1																
Chartiers.....	1																
Chester and Delaware River.....	1					1				1						1	
Corning, Cowanesque and Antrim.....	1					1				1							
Cornwall.....	1																
Dunkirk, Allegheny Valley and Pittsburg.....	1																
East Broad Top.....	1																
Hanover Junction, Hanover and Gettysburg.....	1																
Huntingdon and Broad Top Mountain.....	1																
*Lawrenceville and Evergreen.....	1																
Mont Alto.....	1																
Mount Oliver Inclined Plane.....	1																
North Pennsylvania.....	1																
Parker and Karns City.....	1																
Philadelphia, Baltimore & Central New Jersey.....	1																
Pittsburg and Castle Shannon.....	1																
Pittsburg and Connellsville.....	1																
Pittsburg, Virginia and Charleston.....	1																
South Mountain Iron.....	1																
Sharpesville, Wheatland, Sharon & Greenfield, Summit Branch.....	1																
Toga.....	1																
West Chester and Philadelphia.....	1																
Wilmington and Reading.....	1																
Cumberland Valley.....	1																

*Narrow gauge.

RAILROAD LABOR REPORT—CONTINUED.

NAME OF COMPANY.	See'y Board of Direct's	Pay per day.	Directors.	Treasurer	Pay per day.	Paymasters	Pay per day.	Division superintend't	Pay per day.	Local engineers.	Pay per day.	Mast. mech'ic of shops	Pay per day.	Gen'l foreman of shops	Pay per day.
Bellefonte and Snow Shoe.	1	\$1 00	5							1	\$1 00	1	¾ 33		
*Bell's Gap.	1		5	1											
Buffalo, Corry and Pittsburg															
Charliers	1		8	1											
Chester and Delaware River	1		7	1											
Corning, Cowanesque and Antrim	1		5	1	\$4 00										
Cornwall	1	1 40		1	7 69										
Dunkirk, Allegheny Valley and Pittsburg				1	3 29										
East Broad Top	1		7	1											
Hanover Junction, Hanover and Gettysburg	1	4 17	10	1											
Huntingdon and Broad Top Mountain	1		12	1		1								1	¾ 81
*Lawrenceville and Evergreen.			6	1											
Mont Alto	1		7			1									
Mount Oliver Inclined Plane	1	87	7												
North Pennsylvania	1	8 00		1	12 82	1	\$4 23	1	3 85	1	3 85	1	4 23		
Parker and Karns City						1	7 05								
Philadelphia, Baltimore and Central New Jersey															
Pittsburg and Castle Shannon.	1	10	10	1	7 21			3	2 50			1	3 85		
Pittsburg and Cornellsville															
Pittsburg, Virginia and Charleston	1	6 41										1			
South Mountain Iron															
Sharpesville, Wheatland, Sharon and Greenfield	1		5	1											
Summit Branch															
Tioga														2	2 75
West Chester and Philadelphia				1	6 00							1	5 77	1	3 85
Wilmington and Reading			1	1	6 03							1		1	5 00
Cumberland Valley				1	7 77	1	3 84								

* Narrow gauge.

RAILROAD LABOR REPORT—CONTINUED.

NAME OF COMPANY.	Traveling engineer....	Pay per day.....	Chief clerk of motive power.....	Pay per day.....	Road foremen.....	Pay per day.....	Pay per day.....	Chief clerk maintenance of way.....	Pay per day.....	Clerks.....	Pay per day.....	Chief telegraph operator.....	Pay per day.....	Telegraph operators ..	Pay per day.....	Ticket Agents.....	Pay per day.....	Depot masters	Pay per day.....
Bellefonte and Snow Shoe.....																			
*Bell's Gap.....										2	\$2 88					2	\$1 85		
Buffalo, Corry and Pittsburgh.....										2	50					2	39		
Chartiers.....										2	60								
Chester and Delaware River.....																			
Corning, Covanesque and Antrim.....										4	2 69	1	\$3 68	7	1 66			12	\$1 62
Cornwall.....																			
Dunkirk, Allegheny Valley and Pitsburg										11	2 54			14	1 73	1		6	2 69
East Broad Top.....										4	2 18					6	66	2	1 50
Hanover Junction, Hanover and Gettysburg										8		1				1			
Huntingdon and Broad Top Mountain.....										6				2	1 54	1	1 00		
*Lawrenceville and Evergreen																			
Mont Alto.....														3		3			
Mount Oliver Inclined Plane																			
North Pennsylvania.....										1	\$2 69	1	3 46	12	1 34	15	2 26	15	3 27
Parker and Karns City.....																			
Philadelphia, Baltimore and Central New Jersey										1	2 31					6	2 31		
Pittsburg and Castle Shannon.....										8	2 31					31	1 73		
Pittsburg and Connellsville.....																1	3 20	1	2 60
Pittsburg, Virginia and Charleston														45	1 15	32	1 43		
South Mountain Iron.....																10			
Sharpsville, Wheatland, Sharon & Greenfield																5	1 58		
Summit Branch.....																			
Tioga.....										1	3 21	1		4	1 92	4			
West Chester and Philadelphia.....												1	3 85					1	1 50
Wilmington and Reading.....										6	1 91			2	1 92	21	1 65		
Cumberland Valley.....										10	2 31					39	1 92		

* Narrow gauge.

RAILROAD LABOR REPORT—CONTINUED.

NAME OF COMPANY.	Pay per day.....		Track foremen.....		Pay per day.....		Watchmen.....		Pay per day.....		Firemen.....		Pay per day.....		Brakemen.....		Pay per day.....		Conductors—freight...		Pay per day.....		Conductors—passenger		Pay per day.....		Locomotive drivers...		Pay per day.....		Train dispatchers.....		Pay per day.....		Train masters.....	
	\$	¢	\$	¢	\$	¢	\$	¢	\$	¢	\$	¢	\$	¢	\$	¢	\$	¢	\$	¢	\$	¢	\$	¢	\$	¢	\$	¢	\$	¢	\$	¢	\$	¢	\$	¢
Bellefonte and Snow Shoe.....	5	81	2	00	2	10	3	25	1	25	3	85	1	25	1	25	1	25	3	25	1	25	3	85	1	25	3	25	1	25	3	85	1	25	3	85
*Bell's Gap.....	1	50	1	50	1	50	1	50	1	50	1	50	1	50	1	50	1	50	1	50	1	50	1	50	1	50	1	50	1	50	1	50	1	50	1	50
Buffalo, Corry and Pittsburg.....	10	192	10	192	10	192	10	192	10	192	10	192	10	192	10	192	10	192	10	192	10	192	10	192	10	192	10	192	10	192	10	192	10	192	10	192
Chartiers.....	4	173	4	173	4	173	4	173	4	173	4	173	4	173	4	173	4	173	4	173	4	173	4	173	4	173	4	173	4	173	4	173	4	173	4	173
Chester and Delaware River.....	1	126	1	126	1	126	1	126	1	126	1	126	1	126	1	126	1	126	1	126	1	126	1	126	1	126	1	126	1	126	1	126	1	126	1	126
Corning, Cowanesque and Antinim.....	1	166	1	166	1	166	1	166	1	166	1	166	1	166	1	166	1	166	1	166	1	166	1	166	1	166	1	166	1	166	1	166	1	166	1	166
Cornwall.....	3	200	3	200	3	200	3	200	3	200	3	200	3	200	3	200	3	200	3	200	3	200	3	200	3	200	3	200	3	200	3	200	3	200	3	200
Dunkirk, Allegheny Valley and Pittsburg.....	1	173	1	173	1	173	1	173	1	173	1	173	1	173	1	173	1	173	1	173	1	173	1	173	1	173	1	173	1	173	1	173	1	173	1	173
East Broad Top.....	1	200	1	200	1	200	1	200	1	200	1	200	1	200	1	200	1	200	1	200	1	200	1	200	1	200	1	200	1	200	1	200	1	200	1	200
Hanover Junction, Hanover and Gettysburg.....	1	192	1	192	1	192	1	192	1	192	1	192	1	192	1	192	1	192	1	192	1	192	1	192	1	192	1	192	1	192	1	192	1	192	1	192
Huntingdon and Broad Top Mountain.....	1	120	1	120	1	120	1	120	1	120	1	120	1	120	1	120	1	120	1	120	1	120	1	120	1	120	1	120	1	120	1	120	1	120	1	120
*Lawrenceville and Evergreen.....	1	150	1	150	1	150	1	150	1	150	1	150	1	150	1	150	1	150	1	150	1	150	1	150	1	150	1	150	1	150	1	150	1	150	1	150
Mont Alto.....	1	65	1	65	1	65	1	65	1	65	1	65	1	65	1	65	1	65	1	65	1	65	1	65	1	65	1	65	1	65	1	65	1	65	1	65
Mount Oliver Inclined Plane.....	2	154	2	154	2	154	2	154	2	154	2	154	2	154	2	154	2	154	2	154	2	154	2	154	2	154	2	154	2	154	2	154	2	154	2	154
North Pennsylvania.....	1	200	1	200	1	200	1	200	1	200	1	200	1	200	1	200	1	200	1	200	1	200	1	200	1	200	1	200	1	200	1	200	1	200	1	200
Parker and Karns City.....	1	173	1	173	1	173	1	173	1	173	1	173	1	173	1	173	1	173	1	173	1	173	1	173	1	173	1	173	1	173	1	173	1	173	1	173
Philadelphia, Baltimore & Central New Jersey.....	1	154	1	154	1	154	1	154	1	154	1	154	1	154	1	154	1	154	1	154	1	154	1	154	1	154	1	154	1	154	1	154	1	154	1	154
Pittsburg and Castle Shannon.....	1	192	1	192	1	192	1	192	1	192	1	192	1	192	1	192	1	192	1	192	1	192	1	192	1	192	1	192	1	192	1	192	1	192	1	192
Pittsburg and Connellsville.....	1	137	1	137	1	137	1	137	1	137	1	137	1	137	1	137	1	137	1	137	1	137	1	137	1	137	1	137	1	137	1	137	1	137	1	137
Pittsburg, Virginia and Charleston.....	1	145	1	145	1	145	1	145	1	145	1	145	1	145	1	145	1	145	1	145	1	145	1	145	1	145	1	145	1	145	1	145	1	145	1	145
South Mountain Iron.....	1	173	1	173	1	173	1	173	1	173	1	173	1	173	1	173	1	173	1	173	1	173	1	173	1	173	1	173	1	173	1	173	1	173	1	173
Sharpesville, Wheatland, Sharon & Greenfield.....	1	154	1	154	1	154	1	154	1	154	1	154	1	154	1	154	1	154	1	154	1	154	1	154	1	154	1	154	1	154	1	154	1	154	1	154
Summit Branch.....	1	173	1	173	1	173	1	173	1	173	1	173	1	173	1	173	1	173	1	173	1	173	1	173	1	173	1	173	1	173	1	173	1	173	1	173
Tioga.....	1	173	1	173	1	173	1	173	1	173	1	173	1	173	1	173	1	173	1	173	1	173	1	173	1	173	1	173	1	173	1	173	1	173	1	173
West Chester and Philadelphia.....	1	173	1	173	1	173	1	173	1	173	1	173	1	173	1	173	1	173	1	173	1	173	1	173	1	173	1	173	1	173	1	173	1	173	1	173
Wilmington and Reading.....	1	173	1	173	1	173	1	173	1	173	1	173	1	173	1	173	1	173	1	173	1	173	1	173	1	173	1	173	1	173	1	173	1	173	1	173
Cumberland Valley.....	1	150	1	150	1	150	1	150	1	150	1	150	1	150	1	150	1	150	1	150	1	150	1	150	1	150	1	150	1	150	1	150	1	150	1	150

* Narrow gauge.

RAILROAD LABOR REPORT—CONTINUED.

NAME OF COMPANY.	Trackmen	Pay per day	Baggage masters.	Pay per day	Bridge builders	Pay per day	Carpenters	Pay per day	Car builders	Pay per day	Blacksmiths	Pay per day	Machinists	Pay per day	Moulders	Pay per day	Boiler makers	Pay per day
Bellefonte and Snow Shoe.	15	\$1 20					1	\$2 25	1	\$2 25	2	\$1 93	1	\$2 10				
*Bell's Gap	10	1 25					1	2 00	1	2 10	2	1 87						
Buffalo, Corry and Pittsburg.	70	1 35	3	\$1 58			3	2 50										
Chartiers.	20	1 15	1	1 56														
Chester and Delaware River	6	1 40																
Corning, Cowanesque and Antrim.	75	1 25	3	1 54			6	2 50	9	2 25	5	2 75	10	2 50	1	\$2 12	3	\$2 75
Cornwall	6	1 40					1	2 00	4	2 25	2	1 85	4	2 50				
Dunkirk, Allegheny Valley and Pittsburg	150	1 25	3	2 31			1	2 00			2	1 42						
East Broad Top	30	1 00	1	1 50							2	2 00	4	1 69				
Hanover Junction, Hanover and Gettysburg							5	1 80			3	2 64	10	2 40	2	2 30	2	2 87
Huntingdon and Broad Top Mountain	32	1 10	2	1 66	9	\$2 00	6	1 82										
*Lawrenceville and Evergreen	1	1 25																
Mont Alto	7	1 05																
Mount Oliver Inclined Plane	1	2 25																
North Pennsylvania	197	1 61	21	2 00			50	2 67			25	2 25	31	2 50			8	2 50
Parker and Karns City.	7	1 25	2	1 12			2	2 50			1	3 46	1	2 25				
Philadelphia, Baltimore & Central New Jersey	60	1 30	3	1 92			3	2 25	5	2 40	2	2 50	6	2 50				
Pittsburg and Castle Shannon	4	1 37	1	1 50	4	2 25					3	2 00						
Pittsburg and Connellsville	447	1 29	10	1 50	1	2 66	20	2 66	56	2 02	15	2 24	48	2 00	1	2 35	4	2 16
Pittsburg, Virginia and Charleston	25	1 25	2	2 31			2	2 75	2	2 25	1	1 25	1	2 50				
South Mountain Iron	3	1 35																
Sharpsville, Wheatland, Sharon & Greenfield	7	1 25																
Summit Branch	29	1 60	1	1 85			6	2 25			4	2 50	3	2 50			1	2 25
Tioga	31	1 40		2 00				2 25				2 75						
West Chester and Philadelphia	31	1 40	5	1 75					7	2 50	4	3 00	5	2 50			1	2 50
Wilmington and Reading	46	1 10	2	1 40	2	2 10	6	1 70			4	1 54	4	1 90			1	2 10
Cumberland Valley	91	1 10	3	2 00					13	2 00	4	1 85	7	2 00			1	2 35

* Narrow gauge.

RAILROAD LABOR REPORT—CONTINUED

NAME OF COMPANY.	Tinners	Coppersmiths	Pay per day	Common laborers	Pay per day	Switch tenders	Pay per day	Boys	Pay per day	Women	Pay per day	Painters	Pay per day	Average time worked during year—days
Bellefonte and Snow Shoe														312
*Bell's Gap				5	\$1 20	1	\$1 54							8
Buffalo, Corry and Pittsburg				2	1 25	1	52							10
Chartiers				1	1 15									10
Chester and Delaware River				6	1 40									313
Corning, Cowanesque and Antrim														312
Cornwall														312
Dunkirk, Allegheny Valley and Pittsburg				25	1 15									312
East Broad Top				8	1 00									313
Hanover Junction, Hanover and Gettysburg				6										10
Huntingdon and Broad Top Mountain				14	1 40									10
*Lawrenceville and Evergreen														310
Mont Alto														13
Mount Oliver Inclined Plane														365
North Pennsylvania				187	1 50	7	1 65							10
Parker and Karns City				6	1 35									313
Philadelphia, Baltimore and Central New Jersey				20	1 40									10
Pittsburg and Castle Shannon				4	1 37	1	1 37							313
Pittsburg and Connellsville				45	1 22	8	1 00							10
Pittsburg, Virginia and Charleson				2	1 25									8
South Mountain Iron				11	1 15									77
Sharpesville, Wheatland, Sharon and Greenfield														313
Summit Branch				5	1 60	5	1 75							2 50
Tioga														3 2 75
West Chester and Philadelphia				6	1 75	2	1 75							3 2 75
Wilmington and Reading				3	1 20	1	1 12							2 50
Cumberland Valley				16	1 20	1	1 20							2 3 2 00

* Narrow gauge.

DELAWARE AND HUDSON CANAL COMPANY, }
 OFFICE REAL ESTATE DEPARTMENT, }
 PROVIDENCE, PA, July 14, 1875. }

W. HAYES GRIER, Esq.,

Chief of Bureau of Industrial Statistics, Harrisburg, Pa. :

DEAR SIR :—Our President has referred to me the annexed forms received from your office, with directions to furnish you the information required.

As our company is a mining company as well as a transportation company, and our works are located both in Pennsylvania and New York, and as we have, in addition to our locomotive railroads, a gravity railroad with inclined planes, operated by stationary engines, between the mines and Honesdale, and a canal from Honesdale to the Delaware river, we find it difficult to classify our labor so as to conform to the printed form sent us. We have, therefore, made out new schedules containing the information you require, except that we have adopted your form for "mining coal." We forward herewith,

Schedule of mining coal. Labor statistics.

Do . . . railroad. Labor statistics.

Do . . . canal. Labor statistics.

Do . . . real estate and telegraph. Labor statistics

We include in our lists only such as are employed in Pennsylvania.

Very respectfully yours,

E. W. WESTON,
General Agent.

Locomotive drivers, (engineers,)	33	3 05							79 30		do.....
Engineers stationary engines.....	31	2 40						11	64 74		do.....
Conductors, (passenger,)	2	2 89							75 14		do.....
Conductors, (freight,)	56	2 29						11	59 54		do.....
Brakemen.....	173	1 70						11	44 20		do.....
Firemen.....	60	1 81						11	47 06		do.....
Locomotive wipers.....	24	1 27							33 02		do.....
Watchmen.....	28	1 44							37 44		do.....
Track superintendents.....	2	3 81							100 00		12 mos.
Track foremen.....	26	2 35						10	61 36		do.....
Trackmen.....	155	1 30						10	33 80		do.....
Tool and water boys on track.....								11	\$0 79		20 54
Baggage masters.....	4	1 68							43 68		do.....
Master bridge builder.....	1	3 84							100 00		do.....
Carpenters.....	26	2 00						10	52 00		do.....
Car builders.....	15	2 07						10	53 82		do.....
Car repairers.....	41	1 56						10	40 56		do.....
Blacksmiths.....	15	2 32						10	60 32		do.....
Blacksmiths' helpers.....	13	1 60						10	41 60		do.....
Masons.....	6	2 27						10	59 02		do.....
Painters.....	2	2 40						10	62 40		do.....
Machinists.....	22	2 29						10	59 54		do.....
Bolt cutters.....	5	1 22						10	31 72		do.....
Pattern makers.....	2	2 43						10	63 18		do.....
Foremen—shops, &c.....	11	2 57						10	66 82		do.....
Shop boys.....								5	25 22		do.....
Switch tenders.....	20	1 40						11	36 40		do.....
Flagmen at crossings.....	8	1 13						11	29 38		do.....
Assistant stationary engineers.....	13	1 73						11	44 98		do.....
Pulley tinkers.....	3	2 08							54 08		do.....
Pulley oilers.....	6	1 12							29 12		do.....
Rope riggers, (wire ropers,)	8	1 95							50 70		do.....
Drivers, (horses starting cars,)	18	1 66						11	43 16		8 mos.
Engineers steam shovels at Honesdale.....	2	2 61							62 92		do.....
Cranemen, steam shovels.....		2 42									do.....
Canvas and culm boys, Honesdale screens.....								20	82		21 32
Slate pickers, Honesdale screens.....								30	43		11 18
Weighmasters.....	4	1 67									12 mos.
Common laborers, exclusive of track.....	172	1 31						10	43 42		do.....
Total number of employees.....	1,190						65		34 84		do.....

*No women employed by railroad department.

Clerk canal freight line	1						75 00	per mo.	.....	.....
Boatmen	3						40 00	per mo.	.....	.....
General agent real estate department	1						333 33	.....	.....	.....
Assistant and clerks	9					10	84 00	.....	.....	.....
Superintendent telegraph department	1						83 33	.....	.....	.....
Operators	12						37 00	.....	.....	.....
Messengers					2		9 50	.....	.....	.....
Repairer	1						70 00	.....	.....	.....
Total number of employees	256				2					

PHILADELPHIA AND READING RAILROAD COMPANY.

President	1	Men	1	Pay per day .....	.....	Boys.....	.....	Women .....	.....	Pay per day .....	.....	Average hours worked per day.....	.....	Average pay of men per month.....	\$2,100 00	Average pay of women per month .....	.....	Average pay of boys per month .....	.....	Average time worked in the year.....	.....
Vice presidents, (first and second,).....	2		2												750 00						
Comptroller	1		1												337 00						
Assistant comptroller	1		1												337 50						
Chief engineer	1		1												562 50						
General solicitor	1		1												625 00						
General ticket agent.....	1		1												225 00						
General superintendent.....	1		1												562 50						
General master mechanic.....	1		1												225 00						
Auditors, (first and second,).....	2		2												206 25						
General purchasing agent.....	1		1												450 00						
General agents.....	2		2												230 00						
Secretary of board of directors.....	1		1												430 00						
Directors.....	6		6												No pay.						
Treasurer	1		1												750 00						
Assistant treasurer.....	1		1												375 00						
Paymaster	3		3												270 00						
Division superintendents	6		6												157 50						
Local engineers	5		5												200 00						
Master mechanics of shops.....	5		5												108 89						
General foremen of shops.....	65		65												75 30						
Traveling engineer .....	.....		.....												.....
Chief clerk of motive power.....	1		1												126 00						
Road foremen	6		6												108 00						
General freight agent.....	1		1												450 00						
Clerks	427		427												54 69						\$19 00

Telegraph superintendent.....	1	1	157 50		
Telegraph repairsmen.....	11		65 00		
Telegraph operators.....	153	1	42 40	\$36 00	16 20
Ticket and freight agents.....	189		49 85		
Depot masters.....	1				
Train masters.....	3				
Train dispatchers.....	97				
Locomotive drivers.....	393	\$3 14			
Conductors, (passenger,).....	69	2 90			
Conductors, (freight,).....	287	2 30			
Brakemen.....	1,034	1 98			
Firemen.....	480	2 08			
Watchmen.....	528	1 41			
Track foremen.....	73	1 73			
Trackmen.....	1,886	1 35	15 \$1 00		
Baggage masters.....	33	2 02			
Bridge builders.....	144	1 90			
Carpenters and car builders.....	852	1 60	66		
Blacksmiths and helpers.....	339	1 70	2 65		
Machinists.....	428	1 85	80		
Moulders.....	128	1 55	6 75		
Boiler makers.....	94	1 60	7 65		
Tinners.....	31	1 70	6 70		
Coppersmiths.....	6	2 13	2 95		
Stone masons.....	66	1 95			
Common laborers.....	1,676	1 60			
Switch tenders.....	67	1 45			
Painters.....	78	1 75	1 50		
Depot hands.....	269				
Office cleaners.....					
Car cleaners.....				10 75	
Sill inspectors.....	35	15 \$1 00			75 00
Line inspector.....	1				90 00

September 15, 1875.

F. B. GOWAN, *President P. & R. R. R. Co.*

NOTE.—The above embraces the labor reports of the following railroad companies, viz: Philadelphia and Reading, (with branches owned by company,) Allentown, Colebrookdale, East Mahanoy, East Pennsylvania, Perkiomen, Pickering Valley and Reading and Columbia. In addition, the following roads are worked or leased by the Philadelphia and Reading, viz: Catawissa, Chester Valley, Chestnut Hill, Little Schuylkill, Mill Creek and Mine Hill, Mine Hill and Schuylkill Haven, Mount Carbon and Port Carbon, Philadelphia and Chester, Philadelphia, Germantown and Norristown, Schuylkill Valley.

LAKE SHORE AND MICHIGAN SOUTHERN RAILWAY.

	Men.....	Per day pay.....	Boys.....	Pay per day.....	Women.....	Pay per day.....	Aver'ge pay of men per month.....	Aver'ge pay of women per month..	Av'ge pay of boys per month.....	Aver'ge time worked in the year....
President.....	1									12 mos.
Vice presidents.....	2									do
General manager.....	1						\$83 33			do
Chief engineer.....	1						666 66			do
General ticket agent.....	1						291 66			do
General superintendent.....	1						666 66			do
General master mechanic.....	1						416 66			do
General auditor.....	1						583 33			do
General purchasing agent.....	1						416 66			do
Secretary board of directors.....	1						583 33			do
Directors.....	13									do
Treasurer.....	1						583 33			do
Paymaster.....	2						208 33			do
Division superintendents.....	10						200 00			do
Local engineers.....	5						208 33			do
Master mechanics of shops.....	8						200 00			do
General foremen of shops.....	74						90 00			do
Traveling auditor.....	1						208 33			do
Chief clerk of motive power.....	1						83 32			do
Road foremen.....	240	\$1 56					47 00			do
Chief clerk maintenance way.....	1	4 16					125 00			do
Clerks.....	704	1 83					55 00			do
Superintendent telegraph.....	1	5 00					150 00			do
Telegraph operators.....	355	1 40					42 00			do
Ticket agents.....	42	2 66					80 00			do
Depot masters.....	9	2 20					66 00			do
Target men.....	162	1 62					42 00			do
Train dispatchers.....	15	3 33					100 00			do
Locomotive drivers.....	475	2 80					84 00			do
Conductors, (passengers).....	75	3 26					98 00			do

Conductors, (freight).....	242	2 33	.....	70 00	.....do
Brakemen.....	736	1 58	.....	47 50	.....do
Firemen.....	479	1 46	.....	44 00	.....do
Watchmen.....	453	1 20	.....	38 00	.....do
Track foremen.....	15	3 66	.....	110 00	.....do
Yard conductors.....	58	2 13	.....	64 00	.....do
Baggage masters.....	212	1 56	.....	47 00	.....do
Bridge builders.....	65	2 16	.....	65 00	.....do
Carpenters.....	265	1 63	.....	49 00	.....do
Car builders.....	739	1 60	.....	48 00	.....do
Blacksmiths.....	104	1 66	.....	50 00	.....do
Machinists.....	413	1 76	.....	53 00	.....do
Moulders.....	33	2 20	.....	63 00	.....do
Roiler makers.....	88	1 73	.....	52 00	.....do
Tinners.....	25	1 50	.....	45 00	.....do
Coppersmiths.....	45	1 66	.....	50 00	.....do
Common laborers.....	2,834	1 25	.....	32 50	.....9 mos.
Switch tenders.....	291	1 30	.....	39 00	.....12 do
Painters.....	64	1 50	.....	45 00	.....do
Station agents.....	233	2 06	.....	62 00	.....do
Passenger agents.....	2	6 94	.....	208 33	.....do
Apprentices and helpers.....	544	1 33	.....	40 00	.....do

C. P. LELAND, Auditor.

(Signature)

Dated CLEVELAND, July 15, 1875.

REMARKS.—The total amount of the labor roll of this road per month, is \$478,802 59, of which 8.55 per cent., or \$40,937 62 belongs in the State of Pennsylvania, that being the proportion of miles of road in that State.

Total miles of railroad operated by the men detailed above.

Miles in Pennsylvania (8.55 per cent.)..... 1,175.39

To wit:—Main line (through Erie)..... 100.45

Jamestown and Franklin railroad..... 44.06

Ashtabula branch (in Pennsylvania)..... 51.10

..... 5.20

100.45

LAKE SHORE AND MICHIGAN SOUTHERN RAILWAY, {
CLEVELAND, O., Aug. 23, 1875. }

W. HAYES GRIER, Esq.,

Chief of the Bureau of Industrial Statistics, Harrisburg, Pa. :

DEAR SIR :—The enclosed circular and blank, dated June 17, have just been received by me from the President of the Jamestown and Franklin railroad, and I beg to return them with this explanation. The Jamestown and Franklin railroad is leased to and operated by the Lake Shore and Michigan Southern railway, and the "Railroad Labor Report" of this company, transmitted to you some weeks since, covered all the employees engaged in the operation of the entire Lake Shore and Michigan Southern railway and branches.

Hoping this explanation will be satisfactory,

I remain yours respectfully,

C. P. LELAND, *Auditor.*

per R.

STATEMENT OF MATERIALS USED BY COAL AND WOOD BURNING ENGINES, AND COST OF REPAIRS TO SAME, ON THE DELAWARE, LACKAWANNA AND WESTERN RAILROAD, FOR THE YEAR 1875.

Through the courtesy of Walter Dawson, Esq., master mechanic for the Delaware, Lackawanna and Western railroad company, we are enabled to present the following tables. As the tables for each month were voluminous, we append a full statement for the month of January, 1875, and the general average for each succeeding month in the year :

DELAWARE, LACKAWANNA AND WESTERN RAILROAD COMPANY STATEMENT—CONTINUED.

NAMES OF ENGINES.	Miles run	Pints of oil.....	Miles run to one pint.....	Pounds tallow ..	Pounds waste...	Cost of oil waste and tallow.....	Cost per mile of oil waste and tallow	Cost of repairs of engines.....	Cost per mile of repairs	PINTS LAMP OIL.		Cost of lamp oil,
										Signal....	Kerosene,	
<i>Coal-Burning Engines—Continued:</i>												
28. Pennsylvania.....	2,190	90	24.33	80	27.37	\$13.87	\$0.65	\$181.02	\$8.26	4	50	\$4.24
29. Acquanasicola.....	2,700	92	29.34	105	25.71	15.70	.57	4.45	16	4	8	.67
30. Mequesink.....	2,090	98	21.32	90	23.22	15.44	.74	39.24	1.88	4	52	2.32
31. Indiana.....	2,000	56	35.71	32	65.62	7.21	.36	6.50	31			
32. Drake Mills.....	620	48	12.92	28	22.14	6.80	1.09	92.74	14.95	8	10	1.12
33. Polatcong.....	400	38	10.52	14	28.57	4.38	1	365.60	91.40			
34. Pocono.....	900	54	16.65	24	37.50	7.24	.80	165.28	18.36			
35. Ohio.....	2,900	53	51.78	48	60.42	9.09	.31	63.84	2.30	6	74	3.33
36. Gen. Grant.....	1,680	62	27.10	64	26.25	10.37	.62	152.20	9.06	4	34	1.64
37. California.....	1,892	88	21.50	80	23.65	5.12	.67	15.20	80			1.65
38. John Brisbin.....	1,910	88	21.70	72	26.53	13.05	.68	56.53	2.96	4	10	.74
39. Illinois.....	1,100	28	39.28	16	68.75	3.50	.32	38.74	3.52			
40. Meshoppen.....	2,400	92	26.08	101	23.76	12.58	.66	129.71	5.41	4	4	.52
41. Sam Sloan.....	2,523	48	56.23	37	68.19	11.76	.30	4.66	18	4	24	1.37
42. George Bulkley.....	2,090	100	20.90	90	23.22	8.15	.43	31.32	1.02	2	58	2.36
43. Black Hawk.....	1,731	74	23.39	69	25.09	9.15	.69	50.05	2.80	2	40	1.69
44. Wyalusing.....	1,700	80	21.25	76	22.37	8.12	.74	54.03	3.16	2	36	1.54
45. Cloconut.....	1,680	56	30.00	66	23.94	10.23	.61	48.24	2.88	4	34	1.64
46. Ch. H. Marshal.....	2,150	106	20.28	80	26.87	15.13	.70	145.15	6.75	4	46	2.09
48. Economy.....	1,020											
49. Success.....	14			13		2.52		39.12		2		.19
51. Frugality.....	1,800	52	34.61	58	31.03	9.15	.51	22.25	1.23			
52. Water Gap.....	1,100	62	17.74	33	33.33	11.80	.73	99.74	9.07		4	.15
53. Roaring Brook.....	1,800	98	18.37	48	37.50	12.13	.67	154.74	8.59	4	8	.67
54. Wind Gap.....	2,800	12	233.33	13	216.16	2.14	.68	17.09	61	2		.19
55. Vaas Gap.....	500	8	62.50	8	62.50	4.16	.33					
56. James Brown.....	1,260	48	26.25	52	24.23	8.24	.65	144.25	11.45	4	38	1.79
57. W. E. Dodge.....	3,020	92	32.82	82	36.83	9.13	.88	178.73	5.91	2	10	.56
58. Investigator.....	2,100	92	22.82	72	29.30	13.03	.62	177.85	8.47	4	44	2.02
59. Decision.....								336.64				

60. Col. Seranton.....	3,322	74	44.89	109	30.48	10	15.49	46	64.38	1.94	2	52	2.84
61. Stroudsburg.....	2,529	96	26.25	96	26.25	8	15.44	61	14.87	1	4	78	3.29
63. Monoclonock.....	2,100	80	26.25	77	27.27	8	12.52	61	91.51	4.36	4	52	2.32
64. C. R. Roberts.....	1,630	82	19.88	70	23.28	11	12.59	77	163.80	10.05	4	36	1.72
65. W. S. Wetmore.....	2,000	40	50.00	72	27.77	8	9.64	48	85.63	1.78	.....	22	82
66. Fairfield.....	3,926	124	31.63	98	40.51	21	19.18	47	53.40	1.36	.....	22	82
67. Gen. Sherman.....	1,610	44	36.59	44	36.59	2	6.44	40	25.54	1.58	2	8	49
68. John E. Williams.....	2,520	102	24.71	104	24.23	12	17.01	67	111.85	4.43	4	64	2.77
69. J. I. Blair.....	1,200	4	25.00	42	28.57	4	7.21	60	18.88	1.57	4	30	1.49
70. Gen. Sheridan.....	1,420	60	23.63	60	23.63	8	9.86	68	19.00	1.34	4	26	1.34
71. G. N. Miller.....	1,200	56	21.43	42	28.57	5	6.29	65	180.39	15.03	4	35	1.72
72. Montrose.....	1,800	42	42.85	40	45.00	4	7.80	35	22.42	1.25	4	.....	37
73. Southampton.....	1,000	56	17.86	36	27.77	5	7.29	73	13.01	1.30	.....	6	22
74. Henry Young.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
75. Union.....	1,800	92	19.56	71	25.35	9	12.94	72	27.10	1.50	4	38	1.79
76. S. B. Chittenden.....	2,374	84	28.23	87	27.29	8	13.71	57	164.42	6.93	4	56	2.47
77. R. R. Graves.....	1,410	54	26.85	44	32.05	9	8.42	60	48.17	3.42	.....	22	82
78. Ch. Danforth.....	1,720	70	24.57	72	23.89	8	11.23	66	45.60	2.66	2	48	1.99
79. J. J. Albright.....	.....	.....	.....	.....	.....	.....	.....	.....	796.87	.....	.....	.....	.....
80. D. S. Dickinson.....	600	24	25.00	22	27.27	2	3.69	61	144.90	24.15	.....	16	60
81. Lowell Holbrook.....	1,300	72	18.05	52	25.00	11	10.53	81	54.34	4.18	4	16	97
82. Watts Cooke.....	2,640	88	30.00	100	26.40	8	15.14	57	53.03	2.01	4	26	1.34
83. P. R. Pyno.....	1,890	100	18.90	64	29.53	11	13.61	72	119.20	6.31	4	56	2.47
84. Geo. Bliss.....	1,100	40	27.50	40	27.50	4	6.40	58	7.85	7.11	.....	18	67
85. A. J. Odell.....	1,600	56	28.57	49	32.65	8	8.78	55	34.83	2.15	.....	26	97
86. James Archibald.....	1,300	70	18.57	56	23.21	4	9.53	73	39.04	3.00	.....	12	45
87. Hyde Park.....	1,300	48	27.08	24	54.16	5	5.81	45	10.78	83	.....	.....	.....
88. Moses Taylor.....	.....	.....	.....	.....	.....	.....	.....	.....	906.89	.....	.....	.....	.....
89. B. H. Throop.....	4,000	112	35.71	137	21.89	8	19.66	49	175.90	4.39	4	33	1.72
90. E. Minton.....	1,700	114	14.91	76	22.37	9	14.68	86	99.32	5.84	4	56	2.47
91. J. H. Seranton.....	1,560	68	22.94	56	22.50	6	9.72	62	28.19	1.81	4	24	1.27
92. Gov. Curtin.....	1,890	132	14.32	88	21.48	10	17.18	91	139.61	7.38	8	60	3.00
93. Gov. Geary.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
94. Gov. Packer.....	.....	6	.....	.....	.....	3	78	.....	578.72	.....	.....	.....	.....
95. Gen. Kearney.....	1,980	76	26.05	64	30.93	10	11.74	60	1,115.05	.....	.....	.....	.....
96. Gen. Meade.....	1,712	74	23.13	56	30.57	18	12.03	70	217.74	11.00	4	48	2.17
97. Gen. Burnside.....	2,500	84	29.76	72	34.72	10	12.70	51	54.87	3.20	2	16	85
98. Continental.....	.....	.....	.....	.....	.....	.....	.....	.....	2.90	12	8	30	.....
99. Diamond.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
100. Elizabethport.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
101. Syracuse.....	1,040	48	21.67	.....	.....	.....	3.12	30	.....	.....	.....	.....	.....
102. Walter Dawson.....	1,910	76	25.13	80	23.87	8	12.84	67	14.86	78	6	72	3.61
103. Isaac Bell.....	2,600	120	21.66	104	25.00	4	17.16	63	76.83	2.96	4	22	1.19

DELAWARE, LACKAWANNA AND WESTERN RAILROAD COMPANY STATEMENT—CONTINUED.

NAMES OF ENGINES.	Miles run.....	Pints of oil.....	Miles run to one pint.....	Pounds tallow..	Miles run to one pound tallow..	Pounds waste ..	Cost of oil, waste and tallow	Cost per mile of oil, waste and tallow.....	Cost of repairs of engines	Cost per mile of repairs	PINTS LAMP OIL.		Cost of lamp oil,
											Signal....	Kerosene,	
101. J. J. Astor.....	2,000	72	27.77	80	25.00	8	\$12.52	\$0.62	\$34.23	\$1.71	4	30	\$1.49
105. G. F. Tallman.....	1,814	82	22.12	76	23.87	8	12.71	70	68.74	3.78	8	62	3.07
106. M. H. Grinnel.....	1,800	76	23.68	92	19.56	7	13.73	76	122.56	6.81	4	42	1.94
107. P. H. Vandervort.....													
108. R. S. Hone.....													
109. Ahwaga.....	1,000	80	33.33	12	83.33	6	3.75	37	3.00	30			
110. D. Duer.....	1,050	40	26.25	40	26.25	2	5.96	57	62.70	5.97	4	24	1.27
111. W. F. Hallstead.....	2,400	72	33.33	80	30.00	8	12.52	52	18.94	79	4	56	2.47
112. G. W. B. Cushing.....	600	46	13.04	24	25.00	12	6.29	105	203.86	33.74		6	22
113. W. R. Storrs.....	2,000	72	27.77	85	23.25	7	12.90	61	52.79	2.61	2		1.76
114. Oswego.....	2,190	54	40.55	86	25.46	10	12.12	55	87.48	3.99	4	62	2.69
115. Binghamton.....	1,890	102	18.53	74	25.54	16	15.00	79	162.05	8.57	8	40	2.20
116. E. R. Holden.....	1,770	82	21.59	36	49.17	12	9.83	56	219.41	12.39	2	46	2.11
117. D. T. Bound.....	2,310	80	28.87	88	26.25	10	13.92	60	31.00	1.36	4	54	2.61
118. James Blair.....	2,310	76	30.39	88	26.25	10	13.78	59	91.49	3.96	4	52	2.32
119. W. B. Phelps.....	2,520	98	25.71	89	28.31	15	16.00	64	163.44	6.48	4	60	2.62
120. J. C. Platt.....	1,500	76	19.73	69	21.74	8	11.90	80	14.67	98		8	30
121. W. W. Phelps.....	1,500	78	19.23	51	29.41	8	10.44	70	25.65	1.71	2	20	94
123. Daniel James.....	3,773	128	29.48	110	34.30	11	19.22	51	107.70	2.85	8	26	1.72
125. Oxford.....	1,648	91	17.57	74	22.27	12	13.66	83	17.76	1.19	2	53	2.29
126. Bellevue.....	2,200	53	39.28	65	33.84	8	10.14	46					
127. Thos. Dickson.....	3,926	102	38.49	103	38.11	17	17.95	46	198.09	5.04	2	48	1.99
128. John Steward.....	1,400	40	35.00	46	30.43	4	6.73	48	52.53	3.74	2	22	1.01
129. City Bank.....	1,700	64	26.56	56	30.36	4	9.32	55	30.97	1.94	4	40	1.87
131. Wm. Henry.....	2,100	78	28.42	86	24.42	10	13.68	65	11.23	53	4	72	3.42
132. Moscow.....	1,040	40	26.00	32	32.50	2	5.46	52	8.18	78		12	45
133. Portland.....	2,062	70	29.75	80	25.77	6	11.65	56	100.60	4.83		48	2.17

Coal-Burning Engines—Continued:

RECAPITULATION, FOR THE MONTHS OF

JANUARY.

	Miles run	Pints of oil used.	Miles run to 1 pint of oil.	Pounds of tallow used.	Miles run to one p. nd.	P'ls of waste used.	Cost for oil, waste and tallow.	Cost per mile for oil waste and tallow.	Cost for repairs of engines.	Cost per mile for repairs.
Wood burners.....	2,675	50	53.50	46	58.15	7	\$7 64	28	\$181 40	\$6 78
Coal burners.....	197,882	7,692	25.72	6,681	29.62	902	1,168 96	59	14,160 60	7 16
Total.....	200,557	7,742	.....	6,727	.....	909	1,166 60	.....	14,342 00	.....
General average.....			25.90	.....	29.81	.....	.....	58	.....	7 15

Average cost per mile for engineers, firemen, wipers, &c., \$6 54.

FEBRUARY.

Wood burners.....	2,140	44	48.64	30	71.33	1	\$5.39	25	\$127.38	\$5.95
Coal burners.....	205,178	8,324	24.65	7,436	27.59	924	1,260.60	62	14,101.83	6.87
Total.....	207,318	8,368	.....	7,466	.....	925	1,265.99	.....	14,229.21	.....
General average.....	.....	.....	24.77	.....	27.77	.....	.....	61	.....	6.86

Average cost per mile for engineers, firemen, wipers, &c., \$7 04.

MARCH.

Wood burners.....	4,960	146	33.97	153	32.41	11	\$21 80	44	\$49 51
Coal burners.....	311,597	12,400	25.09	10,834	28.72	1,071	1,802 17	58	16,260 05
Total.....	316,167	12,546	.....	10,987	.....	1,082	1,823 97	.....	16,309 56
General average.....	.....	.....	25.20	.....	28.78	.....	.....	57	5 16

Average cost per mile for engineers, firemen, wipers, &c., \$6 10.

JULY.

Wood burners.....	8,710	272	32.02	250	34.84	29	\$41.52	47	\$261.63	\$3.00
Coal burners.....	354,840	16,968	20.91	12,691	27.96	1,476	2,349.05	66	17,948.98	5.06
Total	363,550	17,240	.....	12,941	.....	1,505	2,390.57	.....	18,210.61	.....
General average.....	.....	.....	21.09	.....	28.10	.....	.....	65	.....	5.00
Average cost per mile for engineers, firemen, wipers, &c., \$6 11.										

AUGUST.

Wood burners.....	10,790	400	26.97	310	34.81	39	\$54.05	50	\$397.33	\$3.68
Coal burners.....	321,788	15,128	21.27	11,872	27.10	1,350	2,053.78	64	17,880.31	5.55
Total	332,578	15,528	.....	12,182	.....	1,389	2,107.83	.....	18,277.64	.....
General average.....	.....	.....	21.42	.....	27.30	.....	.....	63	.....	5.49
Average cost per mile of engineers, firemen, wipers, &c., \$6 39.										

SEPTEMBER.

Wood burners.....	12,130	356	34.07	328	36.98	33	\$53.40	44	\$397.75	\$2.45
Coal burners.....	289,149	11,951	24.19	10,078	28.69	1,105	1,723.87	60	16,981.54	5.87
Total	301,279	12,307	.....	10,406	.....	1,138	1,777.27	.....	17,279.29	.....
General average.....	.....	.....	24.48	.....	28.95	.....	.....	59	.....	5.73
Average cost per mile of engineers, firemen, wipers, &c., \$6 33.										

OCTOBER.

Wood burners.....	12,395	420	29.51	335	37.00	37	\$48.56	39	\$143.35	\$1.16
Coal burners.....	267,696	11,128	24.05	9,720	27.54	1,139	1,391.19	52	16,397.43	6.12
Total	280,091	11,548	.....	10,055	.....	1,176	1,439.75	.....	16,540.78	.....
General average.....	.....	.....	24.25	.....	27.85	.....	.....	51	.....	5.90
Average cost per mile of engineers, firemen, wipers, &c., \$6 39.										

PENNSYLVANIA RAILROAD.

I am obliged to issue this report without any return from the Pennsylvania Railroad Company. Blanks were furnished to the company, and after waiting a considerable time for their return, I addressed the following letter to the President :

HARRISBURG, November 27, 1875.

THOMAS A. SCOTT,

President Pennsylvania Railroad Company, Philadelphia, Pa. :

DEAR SIR :—I am now engaged in compiling the Railroad Labor Reports, and desire yours at your earliest convenience. Suitable blanks were forwarded to you last June.

Respectfully yours,

W. HAYES GRIER,

Chief of the Bureau.

The following answer was received :

THE PENNSYLVANIA RAILROAD COMPANY, }
PHILADELPHIA, November 29, 1875. }

W. HAYES GRIER, Esq.,

Chief of Bureau, Harrisburg, Pa. :

SIR :—I acknowledge receipt of yours of 22d, and am obliged to say that the statistical blanks forwarded by you have been mislaid and cannot be found. Will you so far oblige me as {by sending a duplicate, in order that I can conform to the law in the matter?

Yours very respectfully,

JOS. LESLEY, *Secretary.*

HARRISBURG, November 30, 1875.

JOSEPH LESLEY,

Secretary Pennsylvania Railroad Co.,

No. 233 South Fourth street, Philadelphia, Room No. 7.

DEAR SIR :—I send you per express a number of railroad labor blanks, in order that you can facilitate the work of condensing the reports of your several divisions and branches. I hope there will be no delay in the work, as I am now engaged in tabulating similar reports from other companies, and must soon have them in the hands of the State Printer.

Respectfully yours,

W. HAYES GRIER,

Chief of the Bureau.

Up to January 20, 1876, no report had been received, and a reminder was forwarded, requesting a prompt return of the blanks. In lieu thereof, the following communication was received from the General Manager :

PENNSYLVANIA RAILROAD COMPANY,
OFFICE OF THE GENERAL MANAGER, }
PHILADELPHIA, PA., *February 2, 1876.*

W. HAYES GRIER, Esq.,

Chief of the Bureau of Industrial Statistics, Harrisburg, Pa. :

DEAR SIR:—Within the last week a communication from you has been referred to me by the Secretary of this company, inclosing also a blank railroad labor report, which you requested to have filled up. I have examined the report carefully, and regret to say that the fluctuations in the number of men employed, and the various modes we have of paying our employees, by the month, trip, day and hour, together with the great varieties of runs and hours on duty, renders it impossible for us to give you even approximately reliable information under the headings of your report ; otherwise it would give me great pleasure to fill out the report and forward it to you as complete as you desire.

Very respectfully,

FRANK THOMSON,
General Manager.

RAILROAD FIGURES.

The following is condensed from the report of the Philadelphia and Reading railroad company for the year 1875 :

Wages of engineers, conductors, firemen, brakemen, plane hands, etc., \$1,141,462 56.

Wood, 6,726 cords, \$28,954 71; loading and cutting, \$13,279.

The road used 196,603 gallons of oil, at a cost of \$69,589; tallow, lard, grease and cotton waste, cost \$62,659; fuel for locomotives, 243,122 tons, at a cost of \$838,771; expenses of telegraph, \$49,851.

The company paid its blacksmiths, machinists, carpenters, mechanics and shop hands, \$772,769; wages of depot hands, \$181,397; watchman at depot, switches, etc., 172,780; watchmen at signal towers, \$36,220.

The salaries of all officers, clerks, etc., in the superintendent's office, amount to \$309,729, and for stationery, printing, advertising, furniture and office sundries, \$77,248 were paid; total expenses of all kinds of transportation department, \$4,418,215 87.

The company owns 357 first class engines, 45 second class, 2 third and 6 fourth, in all 410.

They own 3 eight-wheel iron coal cars, 7,762 wooden coal cars, 1,176 four-wheel iron coal cars, 5,434 four-wheel wooden coal cars—in all 14,975, equivalent to 22,740 four-wheel cars.

In freight cars they own 1 sixteen-wheel gun car, 1,125 eight-wheel house cars, 114 eight-wheel cattle cars, 2,061 gondolas, 221 lime cars, 28 four-wheel house cars, 26 four-wheel gondolas, 21 four-wheel sand and ore cars, 253 four-wheel lime cars—in all 3,850 cars.

In passenger cars they own 251 eight-wheelers, 44 baggage and 15 mail and baggage—total 310.

There are 58 stationary engines, 20 snow plows, 38 carts, 53 express wagons, 214 horses and mules, 84 express horses, 38 extra tenders for locomotives, 3 dirt scows, 1 sweeping car. The company's cars, etc., foot up 31,673.

Of the 410 locomotives, 365 are in daily use on the roads, 28 are in the shops, 6 are ready for use, and 11 are out of service to be rebuilt; 302 were built at the Reading shops of the company. Locomotive, No. 49, first class, now in shops under repair, at Richmond, has run a total distance of 501,860 miles since August, 1857, the highest number of all.

All the locomotives together ran 7,690,534 miles last year; 1,437,233,393 tons were pulled at least one mile, including weights of cars; average weight of through loaded coal trains, 948 tons. From May, 1838, to November 30, 1870, all the locomotives ran 99,616,438 miles, and pulled 22,401,852,272 tons.

To transport an average load of 550 tons of coal, of 2,240 pounds each, from the coal regions to tidewater, and taking back the empty cars, costs \$169.58, or about 30 cents per ton, as follows: Engineer two days, at \$3.20 per day, fireman \$2.20, conductor, \$2.20, brakeman \$2.07, coal for engines, oil, grease, wear and tear and other expenses. Ten tons of coal are allowed.

A passenger trip of 93 miles costs \$40.95, as follows: Engineer, \$3.06; fireman, \$1.95; conductor, \$2.95; baggage master, \$2; brakeman, (two days,) \$3.70; coal, two and a half tons; 4,000 gallons of water at seven cents per thousand, oil, tallow, other hands, &c.

Daily trip of a freight train, 93 miles, carrying a load of 85 tons, of 2,000 pounds each, costs \$51.28 cents. Engineer, one day, \$3.15; fireman, \$2; conductor, \$2.15; brakemen, three days, \$6.30; three and a half tons of coal, extra hands, signalmen, repairs, wear and tear, &c., or about 60 cents per ton average through.

During the year 59 people were killed, 44 of whom were strangers; 79 were injured, 33 of whom were strangers; 160 cars were broken; there were 70 accidents, and 149 cattle were killed.

The total length of track, sidings, &c. owned by the company is 772 miles; of these 171 miles are single track, 155 double track, 290 sidings; roads leased, 707 miles of track; controlled, 74 miles; grand total, 1,554 miles. The increase of 100 miles over 1874 has witnessed a decrease of expenses of \$60,000, of which amount nearly \$50,000 have been expended in the increased cost of renewal of rails. Nearly ten miles of steel rails were laid last year; total, 102 miles.

This Bureau is indebted to Hon E. Young, Chief of the Bureau of Statistics, Washington, D. C., for valuable tables pertaining to railroad labor, etc., which are herewith subjoined.

TABLE showing the average weekly wages of persons employed by railroad companies in the following States, in the years 1874 and 1875. [Hours of labor per week, 60.]

DEPARTMENT AND OCCUPATION.	Wages paid by railroad companies in Pennsylvania, Tennessee, Iowa and Oregon, in the years 1874 and 1875.					Wages paid in railroad, locomotive and car shops in Kansas, in the year 1874.				
	Pennsylvania, 1874.....	Tennessee, 1874.....	Iowa, 1875.....	Oregon, 1875....	Kansas City, St. Joseph & Council Bluffs railroad.....	Atchison and Nebraska railroad.....	Missouri River, Port Scott and Gulf railroad,	Leavenworth, Lawrence and Galveston railroad.....		
LOCOMOTIVE DEPARTMENT.										
Machinists.....	\$12 00	\$28 00	\$15 99	\$19 50	\$16 08	\$16 20	\$16 50	\$16 95		
Flue setters.....	12 00	8 75			16 50	16 20				
Tanks.....	12 00									
Air-brakes.....	12 50									
Wipers.....	6 00	7 50	9 00	*14 00	*10 50	8 40	8 10	8 10		
Water-house.....	None		10 00	*10 00						
Stationary engineers.....	9 60	15 00	12 00	15 00		12 00	12 00	11 70		
Watchmen.....	8 40	10 00	9 00	*17 50	*14 77		10 00	10 00		
Oilers.....	10 00					12 00	10 20	7 50		
Laborers.....	7 00	6 00	9 00	10 50	9 00	6 60	7 50	7 50		
Blacksmiths.....	14 00	22 50	15 30	21 00	17 70	13 50	16 80	19 20		
Blacksmiths' helpers.....	7 00	13 30	11 10	13 50	10 80	10 80	10 50	10 50		
Forgers.....	18 00									
Heaters.....	18 00		10 50							
Boiler makers.....	12 00	24 00	15 00		13 50	16 20	17 40	15 00		
Stack makers.....	12 00		15 00			15 00				
Coppersmiths.....	14 00	15 00	18 00				16 20			
Carpenters.....	11 00	13 75	14 64			None	18 00			
Pattern makers.....	12 60	24 00	16 80							
CAR DEPARTMENT.										
Carpenters.....	11 50	16 50	14 88	21 00	15 40	16 20	16 20	15 37		
Repairs.....	10 00	10 50	11 40	18 00	13 86	15 00	11 10			
Laborers and car cleaners.....	7 00	6 00	9 00	10 50	9 00		7 50	7 50		
Cabinet makers.....	12 00			24 00						
Oilers.....	19 00	11 40	9 60		12 60		10 20	3 50		

TABLE OF WEEKLY WAGES PAID BY RAILROAD COMPANIES—CONTINUED.

DEPARTMENT AND OCCUPATION.	Wages paid by railroad companies in Pennsylvania, Tennessee, Iowa and Oregon, in the years 1874 and 1875.				Wages paid in railroad, locomotive and car shops in Kansas, in the year 1874.			
	Pennsylvania, 1874.....	Tennessee, 1874	Iowa, 1875.....	Oregon, 1875..	Kansas City, St. Joseph & Council Bluffs railroad.....	Atchison and Nebraska railroad.....	Missouri River, Fort Scott and Gulf railroad,	Leavenworth, Lawrence and Galveston railroad.....
<i>CAR DEPARTMENT—Continued.</i>								
Machinists.....	\$11 00	\$18 00		\$19 50			\$16 50	
Locksmiths.....	13 00							
Timbers.....	11 25	19 50			\$12 75		15 00	
Pattern makers.....	12 00	24 00		24 00	20 00	None	18 00	
Blacksmiths.....	11 60	18 00	\$16 50	21 00			16 80	
Blacksmiths' helpers.....	6 80	11 40	9 00	13 50			10 50	
Painters.....	11 00	18 00	13 14	24 00	14 08	\$18 00	14 40	\$15 37
Gilders.....	12 00							
Upholsterers.....	11 50	18 00			18 00	None	19 50	
Apprentices or boys.....							5 70	3 00
<i>TRACK DEPARTMENT.</i>								
Yard laborers.....	6 00	6 00	7 50	15 16	8 15	6 60		6 90
Yard section laborers.....	6 00	4 80	7 50	10 50	8 15	6 30	6 60	6 60
Construction train.....	6 00	3 90	9 00	6 00	9 30	6 60		
Extra gang.....	6 00		9 00		9 30	6 60		
<i>BRIDGE DEPARTMENT.</i>								
Bridge carpenters.....		13 50	15 00	18 00	14 65	13 50	15 30	15 30
Engineer pile-drivers.....				18 00				6 00
<i>STATIONS.</i>								
Station laborers.....	9 00	5 40		12 00	9 00	8 40		
Laborers at small stations.....	8 00	5 40			9 00	10 00		
Apprentices or boys.....		7 02						
Foremen or overseers.....		24 00				45 00		

* Seven days.

† One foreman.

WAGES PAID BY RAILROAD COMPANIES.

STATEMENT showing the average weekly wages of persons employed by railroad companies in the following States in the year 1874.

OCCUPATION.	Maine.....	Massachusetts.....	Pennsylvania.....	Illinois.....	Indiana.....	Kentucky.....	Missouri.....	General average.....
Machinists.....	\$12 00	\$14 25	\$15 00	\$19 50	\$16 50	\$15 00	\$16 20	\$15 49
Boiler makers.....	12 00	15 50	.....	13 00	14 85	14 00	16 80	14 35
Blacksmiths.....	12 00	16 00	13 00	13 00	17 25	15 75	18 90	15 45
Car builders.....	13 50	14 50	12 42	15 60	16 50	14 40	15 60	14 64
Painters.....	16 50	14 50	12 30	17 41	16 80	11 40	15 00	14 84
Engineers.....	15 00	23 00	12 00	25 00	23 70	.....	32 00	21 78
Firemen.....	10 00	12 00	.....	.....	10 50	.....	.....	10 83
Pattern makers.....	12 00	.....	.....	19 56	.....	.....	17 25	16 27
Laborers.....	7 50	.....	9 00	10 00	10 20	9 00	7 50	8 86
Apprentices.....	5 00	.....	4 80	9 60	.....	.....	.....	7 13
Conductors.....	15 00	.....	.....	.....	17 00	.....	23 00	18 33
Baggage masters.....	9 60	.....	.....	.....	12 30	.....	12 00	11 30
Brakemen.....	9 60	.....	.....	.....	15 50	.....	12 00	12 36
Hours of labor per week.....	.....	.....	60	59	.....	.....	.....	.....

OCCUPATION.	St. Louis, Iron Mountain and Southern railroad company.....	New York, Providence and Boston.....	Rome, Watertown & Ogdensburg railroad.....	OCCUPATIONS.	St. Louis, Iron Mountain and Southern railroad company.....	New York, Providence and Boston.....	Rome, Watertown & Ogdensburg railroad.....
Machinists.....	\$18 90	\$16 50	\$18 00	Pattern makers.....	\$17 00	.....	.....
Boiler makers.....	18 00	.....	18 00	Laborers.....	10 00	\$9 00	\$9 00
Blacksmiths.....	17 00	.....	18 00	Apprentices.....	7 50	.....	.....
Car builders.....	18 00	.....	.....	Conductors.....	21 00	.....	.....
Painters.....	14 76	.....	.....	Baggagemen.....	12 50	.....	.....
Engineers.....	21 54	.....	19 50	Brakemen.....	12 00	.....	.....
Fireman.....	12 30	.....	.....	.....	.....	.....	.....

STATEMENT showing the average weekly wages of persons employed by the Grand Trunk Railway Company, with number employed, in the year 1874.

[Hours of labor per week, about 60, when on full time.]

No.	OCCUPATION.	Wages.	No.	OCCUPATION.	Wages.
<i>Locomotive department:</i>			<i>Car dep't—Continued.</i>		
34	Machinists	\$15 00	9	Helpers	\$10 00
64	Enginemmen	18 00	6	Painters	12 00
59	Firemen	10 00	9	Inspectors	12 00
38	Wipers or cleaners	10 00	6	Cleaners	9 00
4	Waterhousemen, pumpmen	11 00	<i>Track department:</i>		
4	Stationary engineers	10 00	Yard-laborers		
11	Watchmen	11 50	Section-laborers		
16	Laborers	10 00	Construction-train, (extra		
7	Blacksmiths	15 00	gang		
5	Helpers	10 00	<i>Bridge department:</i>		
3	Boilermakers	18 00	Bridge carpenters		
1	Coppersmiths	20 00	Engineer pile-drivers		
6	Carpenters	15 00	<i>Stations:</i>		
<i>Car department:</i>			Station-laborers		
25	Carpenters	14 00	Stevedores		
42	Repairers	12 50	Scalemen		
7	Laborers	8 50	Laborers at small stations ..		
6	Oilers	10 00	Apprentices or boys		
2	Machinists	10 00	Foremen or overseers		
2	Tinners	16 75			
2	Patternmakers	14 50			
10	Blacksmiths	16 50			

* Contract work.

The following is a comparison of coal and coke received direct from the mines on the main line and branches of the Pennsylvania railroad for the years 1874 and 1875:

COAL.	1874. Tons.	1875. Tons.
East Broad Top railroad		53,567
Huntingdon and Broad Top railroad	225,293	204,921
Snow Shoe	63,570	62,426
Tyrone and Clearfield	639,680	915,288
Gallitzin and Mountain region	208,094	223,143
West Pennsylvania railroad	194,008	223,184
South-West Pennsylvania railroad	7,880	29,239
Westmoreland region	911,006	733,695
Pittsburg region	445,532	430,573
Increase	2,695,065	2,876,036
		130,971
COKE.		
Tyrone and Clearfield	849	285
Gallitzin and Mountain region	118	74
West Pennsylvania railroad	46,169	52,999
South-West Pennsylvania railroad	430,739	549,382
Westmoreland region	41,600	36,273
Pittsburg region	68,377	120,281
Increase	587,852	759,074
		71,222

LENGTH OF RAILROADS IN PENNSYLVANIA.

NAME OF COMPANY.	Length of main line of road laid in Pennsylvania.....	Length of double track of road in miles.....	Length of sidings.....	Gauge of road.....
Allegheny Valley	242	12	70.20	4 ft. 9
Allentown	4.50		.30	4 ft. 8 $\frac{1}{2}$
Atlantic and Great Western	92.42	50	115.50	6, 4 ft. 9
Bachman Valley	9			4 ft. 8
Bald Eagle Valley	51.19		5.48	4 ft. 8 $\frac{1}{2}$
Barclay Coal Company	16.23		6	4 ft. 8 $\frac{1}{2}$
Bedford and Bridgeport	38.70		5.17	4 ft. 9
Bellefonte and Snow Shoe	21.20		3.75	4 ft. 8 $\frac{1}{2}$
Berks County	43.25		3.80	4 ft. 8 $\frac{1}{2}$
Buffalo, Bradford and Pittsburg	17.50		4.90	6 ft.
Buffalo, New York and Philadelphia	41.90		14.50	4 ft. 8 $\frac{1}{2}$
Bell's Gap	8.40		.85	3 ft.
Catasauqua and Fogelsville	20		8	4 ft. 8 $\frac{1}{2}$
Catawissa	94		7	4 ft. 8 $\frac{1}{2}$
Chartiers	22.80		1.90	4 ft. 9
Chester Creek	7.25		1	4 ft. 8 $\frac{1}{2}$
Chester Valley	21.50		2	4 ft. 8 $\frac{1}{2}$
Chestnut Hill	4.12	.50	.50	4 ft. 8 $\frac{1}{2}$
Cleveland and Pittsburg	15	3	82	4 ft. 10
Colebrookdale	12.80		1.90	4 ft. 8 $\frac{1}{2}$
Cornwall	7.47		2.75	4 ft. 8 $\frac{1}{2}$
Columbia and Port Deposit .....	.25		.80	4 ft. 9
Corning, Cowanesque and Antrim	37.16		8.11	6 ft.
Cumberland Valley	68.30	7	11.87	4 ft. 9
Connecting	6.78	6.78	5.92	4 ft. 9 $\frac{1}{2}$
Chester and Delaware River	4			4 ft. 8 $\frac{1}{2}$
Danville, Hazleton and Wilkesbarre	45		6	4 ft. 8 $\frac{1}{2}$
Delaware and Hudson Canal	45	32	33	6 ft., 4 ft. 8 $\frac{1}{2}$
Delaware, Lackawanna and Western	115	99	20	6 ft.
Dillsburg and Mechanicsburg	8		.65	4 ft. 9
Dunkirk, Allegheny Valley and Pittsburg	48.20		9	4 ft. 9 $\frac{1}{2}$
East Broad Top	30		4.42	3 ft.
East Brandywine and Waynesburg	17.50			4 ft. 8 $\frac{1}{2}$
East Mahanoy	7.54		3.39	4 ft. 8 $\frac{1}{2}$
East Pennsylvania	36	12.20	15.50	4 ft. 8 $\frac{1}{2}$
Ebensburg and Cresson	11		.50	4 ft. 9
Elmira and Williamsport	70		14	4 ft. 9
Erie	42.05	306.35	315.29	6 ft.
Erie and Pittsburg	81.50		19.98	4 ft. 9 $\frac{1}{2}$
Edgewood	1			4 ft. 9
Fayette County	12.66		.75	4 ft. 8
Frankford and Holmesburg	4.15		.73	4 ft. 10
Hanover Branch	12.50		2.25	4 ft. 8 $\frac{1}{2}$
Harrisburg, Portsm'th Mt. Joy & Lancaster	36	10	9.61	4 ft. 8 $\frac{1}{2}$
Harrisburg and Potomac	12.50		.80	4 ft. 9
Huntingdon and Broad Top Mountain	45		16.50	4 ft. 8 $\frac{1}{2}$
Ironton	11		2	4 ft. 8 $\frac{1}{2}$
Jamestown and Franklin	51		18	4 ft. 9 $\frac{1}{2}$
Jefferson	45.50		8	6 ft.
Junction	4.62	4.62	1.12	4 ft. 8
Lake Shore and Michigan Southern	44.06	230.80	429.23	4 ft. 9 $\frac{1}{2}$
Lawrence	9.36		3.16	4 ft. 9 $\frac{1}{2}$
Lehigh and Lackawanna	15		1.25	4 ft. 8 $\frac{1}{2}$
Lehigh and Susquehanna	105	42	87	4 ft. 8 $\frac{1}{2}$
Lehigh Valley	101	90.11	145.52	4 ft. 8 $\frac{1}{2}$
Lewisburg, Centre and Spruce Creek	19		.90	4 ft. 9
Little Saw Mill Run	3		1	4 ft. 8 $\frac{1}{2}$
Littlestown	9.50		.75	4 ft. 8 $\frac{1}{2}$
Little Schuylkill Navigation	28.20		27.20	4 ft. 8 $\frac{1}{2}$

LENGTH OF RAILROADS IN PENNSYLVANIA—CONTINUED.

NAME OF COMPANY.	Length of main line of road laid in Pennsylvania.....	Length of track of road in miles.....	Length of siding.....	Gauge of road.....
Lykens Valley.....	20			4 ft. 9
Lawrenceville and Evergreen.....	2.61			3 ft.
Ligonier Valley.....	10.20			4 ft. 8 $\frac{1}{2}$
Mifflin and Centre County.....	12.50		5.70	4 ft. 9
Mill Creek and Mine Hill.....	3.80	3.80	12.80	4 ft. 8 $\frac{1}{2}$
Mine Hill and Schuylkill Haven.....	42.50	24	71	4 ft. 8 $\frac{1}{2}$
Mount Carbon and Port Carbon.....	2.50	2.50	10.40	4 ft. 8 $\frac{1}{2}$
Mount Pleasant and Broad Ford.....	9.60		1.50	4 ft. 8 $\frac{1}{2}$
Mont Alto.....	10		.90	4 ft. 9
Muncy Creek.....	6.50		.50	4 ft. 8 $\frac{1}{2}$
Monongahela Inclined Plane.....	.13	.13		5 ft.
Montrose.....	27		1	3 ft.
Mount Oliver Inclined Plane.....	.30	.30		5 ft.
Nesquehoning Valley.....	16.50		5	4 ft. 8 $\frac{1}{2}$
New Castle and Beaver Valley.....	14.97		3.12	4 ft. 10
Newry.....	1.10		.12	4 ft. 8 $\frac{1}{2}$
Northern Central.....	102.14	75.43	53.30	4 ft. 9
North Pennsylvania.....	55.60	26.30	24.50	4 ft. 8 $\frac{1}{2}$
New Castle and Franklin.....	36.25		1	4 ft. 9 $\frac{1}{2}$
New Castle Railroad and Mining.....	3.75			3 ft. 6
North-East Pennsylvania.....	9.80		1	4 ft. 8 $\frac{1}{2}$
Oil Creek and Allegheny River.....	95		33	6 ft. 4 ft. 9
Parker and Karns City.....	10.50		1	3 ft.
Peach Bottom.....	37			3 ft.
Pennsylvania.....	354.90	353.80	152.50	4 ft. 9
Pennsylvania Coal.....	47	47	10	4 ft. 3
Pennsylvania and Delaware.....	22.50		1.50	4 ft. 8 $\frac{1}{2}$
Pennsylvania and New York Canal and.....	104.55	20.51	36.23	4 ft. 8 $\frac{1}{2}$
Pennsylvania Petroleum.....	5			4 ft. 8 $\frac{1}{2}$
Perkiomen.....	23.80		3.50	4 ft. 8 $\frac{1}{2}$
Philadelphia and Baltimore Central.....	36.75		6.50	4 ft. 8 $\frac{1}{2}$
Philadelphia and Erie.....	287.51	28.85	103.47	4 ft. 9
Philadelphia, Germantown & Norristown.....	20	20	5	4 ft. 8 $\frac{1}{2}$
Philadelphia, Newtown and New York.....	4			4 ft. 9
Philadelphia and Reading.....	98.40	98.40	150.10	4 ft. 8 $\frac{1}{2}$
Philadelphia and Trenton.....	26.60	26.40	13.55	4 ft. 9 $\frac{1}{2}$
Philadelphia, Wilmington and Baltimore.....	17.81	81.25	46.70	4 ft. 8 $\frac{1}{2}$
Pickering Valley.....	11.80		.50	4 ft. 8 $\frac{1}{2}$
Pithole Valley.....	7		1	4 ft. 9 $\frac{1}{2}$
Pittsburg, Cincinnati and St. Louis.....	35.25	15.40	38.90	4 ft. 9 $\frac{1}{2}$
Pittsburg and Connellsville.....	142	4	33.70	4 ft. 8 $\frac{1}{2}$
Pittsburg, Ft. Wayne and Chicago.....	48.80	57.06	131.46	4 ft. 9 $\frac{1}{2}$
Pittsburg, Virginia and Charleston.....	30	3	9.71	4 ft. 9
Plymouth.....	9.25		2.37	4 ft. 8 $\frac{1}{2}$
Pittsburg and Castle Shannon.....	6		.87	3 ft. 4
Reading and Columbia.....	40		9.15	4 ft. 8 $\frac{1}{2}$
Schuylkill Valley.....	11	5.30	3.30	4 ft. 8 $\frac{1}{2}$
Selinsgrove and North Branch.....	14			
Shamokin Valley and Pottsville.....	28		4.50	4 ft. 9
Shenango and Allegheny.....	31.23		6.38	4 ft. 9 $\frac{1}{2}$
Somerset and Mineral Point.....	9.10		.20	4 ft. 8 $\frac{1}{2}$
South Mountain Iron Company's.....	17.78		2.26	4 ft. 9
Southern Pennsylvania Railway and Mining company.....	21		.50	4 ft. 9
Southwark.....	1.72	1.39		4 ft. 7
Stony Creek.....	10.30			4 ft. 8 $\frac{1}{2}$
Summit Branch.....	20		10.25	4 ft. 9
Susquehanna, Gettysburg and Potomac.....	17		.25	4 ft. 8 $\frac{1}{2}$
Shenango Valley and Alliance.....	4			3 ft.

LENGTH OF RAILROADS IN PENNSYLVANIA—CONTINUED.

NAME OF COMPANY.	Length of main line of road laid in Penn- sylvania.....	Length of double track of road in miles.....	Length of sidings..	Gauge of road
South-west Pennsylvania.....	24.40	.....	4.80	4 ft. 9
Spring Brook.....	8.50	.....	.12	4 ft. 8
Tioga.....	30.60	.....	8.80	6 ft.
Tresckow.....	6.50	.....	1.50	4 ft. 8 $\frac{1}{2}$
Tyrone and Clearfield.....	43.14	.....	6.36	4 ft. 9
Uniontown and West Virginia.....	8.33	.....	.....	.....
West Chester.....	9	.....	.50	4 ft. 8 $\frac{1}{2}$
West Chester and Philadelphia.....	26.30	.....	5	4 ft. 8 $\frac{1}{2}$
Western Pennsylvania.....	57.10	5.10	19.67	4 ft. 9
Wheeling, Pittsburg and Baltimore.....	18	.....	1	4 ft. 8 $\frac{1}{2}$
Wilmington and Reading.....	52	.....	10.20	4 ft. 8 $\frac{1}{2}$
Wilmington and Western.....	2.39	.....	3.30	4 ft. 8 $\frac{1}{2}$
Western Maryland.....	.50	.....	.....	4 ft. 8 $\frac{1}{2}$
	4,421.11	1,806.28	2,733.14	.....

RECAPITULATION.

Length of main track.....	4,421.11
Do....double track.....	1,806.28
Do....sidings.....	2,733.14
Total miles.....	8,960.53

STREET OR PASSENGER RAILWAYS IN PENNSYLVANIA.

The following table shows the total cost and equipment, length and gauge of street or passenger railways :

NAME OF COMPANY.	Total cost of road and equipment,	Length of road..	Gauge of road..
Allentown.....	\$36,305 74	3.42	4 ft. 8 $\frac{1}{2}$
Central	56,492 70	2.75	5 ft. 2
Citizens' (Philadelphia).....	232,467 28	9	5 ft. 2
Citizens' (Pittsburg).....	179,870 45	5.55	5 ft. 2 $\frac{1}{2}$
Coalville.....	47,636 53	2.87	4 ft. 8 $\frac{1}{2}$
Continental.....	728 75	9	3 ft. 2
Easton and South Easton.....	25,962 50	1.36	5 ft. 2
Empire	106,000 00	7.75	5 ft. 2
Erie City.....	36,996 98	2	4 ft. 8 $\frac{1}{2}$
Federal Street and Pleasant Valley.....	124,450 91	3	5 ft. 2
Frankford and Southwark, Philadelphia.....	914,714 64	16.22	5 ft. 2
Germantown.....	765,838 55	25	5 ft. 2
Green and Coates Street, Philadelphia	244,441 56	7	5 ft. 2
Harrisburg City	17,989 29	2	5 ft. 2 $\frac{1}{2}$
Hestonville, Mantua and Fairmount.....	386,829 07	15	5 ft. 2
Lombard and South Street.....	174,008 98	4.51	5 ft. 2
Penn Street.....	35,179 61	2	5 ft. 2 $\frac{1}{2}$
People's Street, Luzerne County	158,728 77	9.50	4 ft. 8 $\frac{1}{2}$
People's, Schuylkill County.....	114,523 86	6	4 ft. 8 $\frac{1}{2}$
Philadelphia City.....	789,136 05	7	5 ft. 2 $\frac{1}{2}$
Philadelphia and Darby.....	321,058 48	5	5 ft. 2 $\frac{1}{2}$
Philadelphia and Gray's Ferry.....	299,126 68	10.36	5 ft. 2
Pittsburg, Allegheny and Manchester.....	278,090 54	4.75	5 ft. 2
Pittsburg and Birmingham.....	143,436 69	3.25	5 ft. 2
Pittsburg, Oakland and East Liberty.....	167,289 82	5.50	5 ft. 2
Pittston.....	25,000 00	1.50	5 ft. 2
Reading City	45,294 20	5	5 ft. 2 $\frac{1}{2}$
Ridge Avenue	418,810 59	13.70	5 ft. 1
Roxborough and Manayunk Inclined Plane.....	43,724 32	5.50	5 ft. 2 $\frac{1}{2}$
Schuylkill River.....	47,462 54	3.58	5 ft. 2
Second and Third Street.....	814,249 88	37	5 ft. 2 $\frac{1}{2}$
Seventeenth and Nineteenth Street.....	204,973 80	7.50	5 ft. 2
South Side.....	81,851 13	2.21	5 ft. 2
Stroudsburg.....	22,429 72	1.36	6 ft.
Thirteenth and Fifteenth Street.....	268,860 60	10.25	5 ft. 2
Union, Philadelphia.....	1,301,804 13	33	5 ft. 2
Union Street, Warren.....	17,000 00	.50	4 ft. 8 $\frac{1}{2}$
West Philadelphia.....	606,925 66	11.50	5 ft. 2 $\frac{1}{2}$
Wilkesbarre and Kingston	94,833 37	4.12	5 ft. 2
Williamsport	42,318 20	2	4 ft. 8 $\frac{1}{2}$
	9,695,843 57	311.51	.....

CANALS IN PENNSYLVANIA—AN ABSTRACT OF GENERAL CHARACTERISTICS.

CANALS.

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NAME OF COMPANY.	Cost of canal and fixtures.....	Length of main line of the canal.....	Number of branch or leased canals.....	Width at top water line.....	Width on bottom...	Depth of water.....	No. of basins.....	No. of locks.....	No. of weigh locks..	No. of bridges.....	No. of dams.....	No. of miles of slack-water.....	No. of boats owned by the company..	Value of real estate held by the co., exclusive of canal...
Delaware and Hudson.....	\$3,843,910 76	108	.....	48	30	6	1	131	2	136	40	3	1,000	\$2,562 83
Delaware Division.....	2,433,350 00	60	.....	44	26	6	.....	32	1	88	22	.....	.....	5,000 00
Lehigh Coal and Navigation.....	3,000,000 00	48	.....	60	45	6	5	52	1	14	9	12	186	200,000 00
Monongahela Navigation.....	1,151,904 00	85	.....	.....	.....	.....	6	8	.....	.....	6	.....	4	23,095 00
Muncy.....	6,853 64	.....	.....	40	25	4½	1	.....	.....	.....	.....	1	.....	.....
Pennsylvania.....	.....	338	.....	55	40	6	60	132	4	467	19	11	251	.....
Schuylkill Navigation.....	12,758,715 86	108	.....	60	45	6	19	89	.....	126	31	59	550	.....
Susquehanna.....	4,714,143 88	45	.....	50	30	5	2	42	1	13	3	2	20	.....
Union.....	5,907,850 00	77	.....	43	28	4½	8	91	2	79	16	5	.....	25,000 00
	36,816,728 14	869½	5	.....	.....	.....	102	577	11	926	126	84	2,011	305,657 83

CHARACTERISTICS OF TELEGRAPH LINES IN PENNSYLVANIA IN 1874.

NAME OF COMPANY.	Cost of line and equipments	Length of main line in miles	Length of main line in Pennsylvania	No. stations, entire line,	No. stations in Pennsylvania	No. of instruments in use, entire line	No. of instruments in use in Pennsylvania...	No. of persons employed in maintaining and operating entire line.			No. of persons employed in maintaining and operating line in Penn'a.			No. of messages sent during the year, entire line.....	No. of messages sent during the year in Pennsylvania.....	No. of messages received during the year, entire line	No. of messages received during the year in Pennsylvania.....
								Male ..	Female	Total..	Male ..	Female	Total..				
Automatic.....		281	50	32	2	9	2	59	10	69	15	1	15	65,087	65,087	65,087	65,087
American District.....	\$24,837 28			8	8	478	478	88	1	89	88	1	89	65,087	65,087	65,087	65,087
Erle County		73	73	2	2	2	2	5		5			5	2,500	2,500	2,500	2,500
Franklin	590,000 00	920	32	73	6	225	223 18	33	33	381	27	3	30	801,694	63,920	810,720	82,887
Merchants' National.....	50,000 00																
Pacific and Atlantic.....	2,038,611 26																
Philadelphia Local.....	400,030 00	255	235	91	91	237	237	90	40	130	90	40	130	300,000 300,000	210,000 210,000		
Philadelphia, Reading and Pottsville.....	195,230 20	101	766	256	256	480	480	413	7	420	413	7	420	154,768 154,768	154,768 154,768	154,768 154,768	154,768
Rock Hill	2,498 78	30	30	3	3	3	3										
Western Union.....		71,680 5	409 6	188	693	9,500				9,600			1,100	13,800		13,800 0,000	
	3,321,227 52 73,320 6,586 1,061 10,934 1,224 993								91	10,694 633		51	1,780 15,124,549 586,275 15,040,575 515,252				

EXPENSES AND RECEIPTS FOR 1874.

NAME OF COMPANY.	Gross expenses entire line.	Gross expenses in Pennsylvania.	Gross receipts entire line.	Gross receipts in Pennsylvania.
Atlantic and Ohio.....	.....	.....	.....	.....
Automatic.....	\$35,388 84	.....	.....	\$22,747 81
American District.....	1,398 72	\$1,398 72	\$1,398 18	1,398 18
Erie County.....	253,382 69	20,203 50	262,783 14	24,197 05
Franklin.....	.....	.....	.....	.....
Merchants' National.....	.....	.....	.....	.....
Pacific and Atlantic.....	147,526 88	147,526 88	150,458 14	150,458 14
Philadelphia Local.....	68,039 62	68,039 62	55,037 46	55,037 46
Philadelphia, Reading and Pottsville.....	6,433,772 27	.....	9,354,202 91	.....
Western Union.....	.....	.....	.....	.....
	6,937,509 02	237,228 72	9,823,879 83	253,838 67

SCHOOL STATISTICS.

From the very able report of the Superintendent of Public Instruction, we obtain the following statistics in reference to the educational interests of the State :

Number of school districts in the State.....	2,089
Number of schools.....	17,092
Number of graded schools.....	5,625
Number of school directors.....	13,825
Number of superintendents.....	87
Number of teachers.....	19,880
Average salaries of male teachers per month.....	\$41 07
Average salaries of female teachers per month.....	34 09
Average length of school term in months.....	6.85
Number of pupils.....	890,073
Average number of pupils.....	551,848
Percentage of attendance upon the whole number registered,	.62
Average cost of tuition per month for each pupil.....	.92
Cost of tuition for the year.....	\$4,746,875 52
Cost of building, purchasing and renting	
school houses.....	2,059,464 83
Cost of fuel, contingencies, debt and inter-	
est paid.....	2,448,315 78
<hr/>	
Total cost for tuition, building, fuel and contingencies....	\$9,254,656 13
Total cost, including expenditures of all kinds.....	9,363,927 07
Total State appropriations.....	1,000,000 00
Estimated value of school property.....	24,260,789 00

To the \$9,363,927 07 named above, there should be added \$77,324 32, increased expenditure in the city of Pittsburg, not included in the summary ; \$85,815 84 expended for Normal schools, and \$423,693 76 expended in support of the soldiers' orphan schools, to obtain the full sum of \$9,950,-760 99, expended for all school purposes during the school year 1875.

The changes in the most important items of our school statistics as compared with last year, are as follows :

Increase in number of districts.....	18
Increase in number of schools.....	450
Increase in number of graded schools.....	39
Increase in number of school districts.....	75
Increase in number of teachers.....	553

Decrease in the average salary of male teachers per month,	\$1 88
Decrease in the average salary of female teachers per month,	1 78
Increase in average length of school term.....	2 $\frac{3}{4}$ days.
Increase in number of pupils.....	39,299
Increase in average number of pupils.....	8,822
Increase in cost of tuition.....	\$219,567 49
Increase in cost of building, fuel, contingencies, &c.....	297,158 76
Increase in cost of expenditures of all kinds.....	541,941 62

The only discouraging item in this statement is the decrease in teacher's salaries, accounted for by the prevailing stringency in financial affairs. The fact, however, that the expenditures for school purpose during the past year were more than half a million of dollars greater than ever before abundantly proves that our people are willing to support their schools, liberally, notwithstanding the hard times. The increase in the length of term, in the number of pupils in the schools and in the average attendance of pupils is very gratifying.

As a matter of interest to the friends of education, I present in this connection a table showing the educational growth of the State during the past decade :

TABLE showing the educational growth in the past ten years.

Year.....	Graded schools ..	Superintendents..	Average salary of male teachers per month.....	Average salary of female teachers per month.....	Cost of tuition....	School houses.....	Total cost, including expenses of all kinds.....	No. of teachers who attended County Institutes
1865 ..	1,743	65	\$31 82	\$24 21	\$2,515,528 63	\$465,088 08	\$3,614,238 55	2,755
1866 ..	2,800	66	34 34	26 31	2,748,795 08	725,000 00	4,195,258 57	3,704
1867 ..	3,225	68	35 87	27 51	3,028,065 70	1,262,798 68	5,160,750 17	3,944
1868 ..	3,362	75	37 28	28 76	3,273,269 43	1,991,152 55	6,200,539 96	10,268
1869 ..	3,425	76	39 00	30 52	3,500,704 26	2,455,847 71	6,986,148 92	11,381
1870 ..	3,872	79	40 66	32 39	3,745,415 81	2,765,644 34	7,791,761 20	11,210
1871 ..	4,634	81	41 04	32 86	3,926,529 88	3,386,263 51	8,580,918 33	11,890
1872 ..	4,998	85	41 71	34 60	4,104,273 53	2,864,113 35	8,345,072 78	11,625
1873 ..	5,307	86	42 69	34 92	4,325,797 47	1,753,812 36	8,345,836 41	12,302
1874 ..	5,586	86	42 95	35 87	4,527,308 03	2,160,514 87	8,847,939 88	13,970
1875 ..	5,625	87	41 07	34 09	4,746,875 52	2,059,465 83	9,363,927 07	13,863

ESTIMATED VALUE OF THE SCHOOL PROPERTY OF THE STATE.

Adams.....	\$122,220	Lawrence.....	\$169,000
Allegheny.....	3,751,968	Lebanon.....	184,000
Armstrong.....	200,200	Lehigh.....	745,000
Beaver.....	220,750	Luzerne.....	980,000
Bedford.....	134,200	Lycoming.....	270,700
Berks.....	693,750	M'Kean.....	65,300
Blair.....	221,400	Mercer.....	345,000
Bradford.....	277,595	Mifflin.....	100,995
Bucks.....	338,250	Monroe.....	67,650
Butler.....	193,000	Montgomery.....	473,750
Cambria.....	240,850	Montour.....	88,200
Cameron.....	16,055	Northampton.....	580,900
Carbon.....	182,810	Northumberland.....	121,000
Centre.....	166,450	Perry.....	117,000
Chester.....	434,000	Pike.....	28,500
Clearfield.....	121,400	Potter.....	67,300
Clarion.....	116,900	Schuylkill.....	725,000
Clinton.....	125,000	Snyder.....	73,600
Columbia.....	114,800	Somerset.....	111,000
Crawford.....	399,700	Sullivan.....	63,000
Cumberland.....	241,500	Susquehanna.....	68,240
Dauphin.....	525,790	Tioga.....	145,000
Delaware.....	276,500	Union.....	104,000
Elk.....	55,000	Venango.....	225,500
Erie.....	430,000	Warren.....	176,800
Fayette.....	296,500	Washington.....	305,000
Forest.....	32,000	Wayne.....	114,000
Franklin.....	250,000	Westmoreland.....	430,800
Fulton.....	27,905	Wyoming.....	78,000
Greene.....	173,450	York.....	347,500
Huntingdon.....	142,000	Philadelphia.....	5,352,161
Indiana.....	180,250		
Jefferson.....	123,000		
Juniata.....	70,000		
Lancaster.....	611,500		
			<hr/>
			24,260,789
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COUNTY TABULAR STATEMENT, FOR THE SCHOOL YEAR ENDING JUNE 1, 1875.

COUNTIES.	SCHOOLS.			TEACHERS.			SCHOLARS.			TAX AND RATE PER CENT.		
	Whole number.....	Average number of months taught.....	Number of males...	Number of females..	Average salaries of males per month ..	Average salaries of females per month.	Number of males...	Number of females	Average number attending school....	Average percentage of attendance.....	Cost of teaching each per month.....	Total amount of tax levied for school and building purposes..
1 Adams.....	163	5.03	95	69	\$31.92	\$28.00	3,732	3,352	4,606	73½	.80	\$36,774.87
2 Allegheny.....	928	8.06	200	744	60.14	43.74	27,582	25,970	32,809	76	1.01	900,301.67
3 Armstrong.....	256	7.20	160	113	42.92	35.77	6,361	5,619	8,011	72	.87	77,158.66
4 Beaver.....	186	5.58	94	99	42.67	35.79	4,579	4,053	6,074	78	.98	61,338.95
5 Bedford.....	223	6.26	169	59	38.65	31.84	4,956	4,058	5,501	75	.85	50,209.04
6 Berks.....	550	5.10	385	171	36.78	33.63	13,492	11,589	17,490	74	.80	177,363.30
7 Blair.....	186	6.04	114	74	43.57	38.92	5,156	4,590	6,492	75	.88	81,239.45
8 Bradford.....	390½	6.11	164	485	34.13	20.69	7,896	6,957	9,397	78	.82	80,073.83
9 Bucks.....	274	8.	166	160	42.46	37.10	8,499	6,729	8,335	79	.85	107,993.89
10 Butler.....	237	6.	153	186	39.67	29.30	6,263	5,576	8,161	76	.75	66,652.09
11 Cambria.....	292½	5.10	93	111	41.36	32.84	5,028	4,599	5,614	71	.83	63,213.33
12 Cameron.....	36	6.10	8	33	48.33	37.00	586	537	728	74	1.41	8,897.47
13 Carbon.....	126	7.	84	46	44.93	35.13	4,238	3,570	4,064	76	.89	60,097.24
14 Centre.....	210	5.24	150	62	39.61	35.72	4,981	4,101	6,062	77	.99	61,854.04
15 Chester.....	349½	8.33	182	348	41.47	37.61	9,226	8,369	9,835	75	.95	105,846.08
16 Clearfield.....	194	5.	136	103	34.65	27.72	4,897	4,051	5,621	75	.78	5,624.16
17 Clearfield.....	193	5.39	115	96	40.73½	35.43	4,199	3,638	5,927	74	1.05	39,957.10
18 Clinton.....	144	5.05	81	71	38.84	33.29	3,260	2,825	4,012	81	1.14	52,513.65
19 Columbia.....	179	5.07	115	94	38.26	31.00	4,896	4,103	5,537	70	.85	58,650.95
20 Crawford.....	413½	6.	142	544	38.18	23.10	8,839	7,679	12,638	83	1.10	133,551.58
21 Cumberland.....	229	6.07	137	96	41.45	36.72	5,456	4,980	7,076	77	.97	83,599.92
22 Dauphin.....	271½	6.70	106	105	39.66	35.87	8,109	7,222	8,985	75	.91	137,832.42
23 Delaware.....	135	9.	22	123	56.19	44.78	4,549	4,015	4,375	77	.99	100,849.36
24 Elk.....	55	7.	29	40	45.65	34.47	4,976	1,010	1,432	77	1.49	23,054.26
25 Erie.....	383	7.1	121	467	44.05	25.49	5,645	7,285	10,298	82	.87	169,198.08
26 Fayette.....	257½	5.41	183	62	43.60	35.86	6,337	5,299	7,386	71	.86	81,610.16

53 Snyder	109	5.	101	8	28 93	25 40	2,921	2,365	3,061	72	.70	5.06	4.58	24,812 56
54 Somerses	217½	4.93	167	54	32 34	27 06	4,721	4,049	5,617	69	.75	5.14	7.89	43,354 19
55 Sullivan	63	5.09	24	49	28 87½	24 39	1,050	916	1,257	74	.91	10.09	7.14	9,169 21
56 Susquehanna	288	6.19	109	367	32 74	19 97	5,219	4,398	5,973	74	.82	9.14	5.74	50,311 29
57 Tioga	279	6.72	110	330	44 59	24 64	5,858	5,071	6,988	74	.89	7.15	4.31	62,306 75
58 Union	84½	6.30	80	34	38 11	28 17	2,374	1,997	2,631	75	.79	3.91	3.10	19,568 27
59 Venango	237	6.16	140	204	51 64	36 08	5,681	5,234	7,291	78	1.09	5.60	3.4	124,208 06
60 Warren	182	6.1	57	216	50 38	27 13	3,403	3,011	4,553	82	1.13	3.68	1.83	51,529 51
61 Washington	293	5.82	146	163	40 74	35 93	6,723	5,939	8,609	76	.97	5.19	3.1	95,838 53
62 Wayne	206	5.08	72	189	37 45	20 42	4,432	4,006	5,309	72	.76	12.	8.39	36,489 83
63 Westmoreland	342½	5.40	217	132	48 59	38 95	9,893	8,642	11,860	76	.83	3.58	1.77	126,931 19
64 Wyoming	105	6.26	57	133	30 39	16 93	2,209	1,850	2,417	76	.77	3.56	1.	18,328 99
65 York	402	5.52	289	116	34 31	31 29	10,698	9,131	12,315	72	.75	1.94	1.42	101,225 22
66 Philadelphia	15,315½ 1,776	6.47 10.	8,507 78	9,597 1,698	40 03 154 62	31 03 51 34	394,370 74,125	345,724 75,854	472,283 79,565	81 53	.92 1.01	6.33	4.14	5,983,004 90 1,815,811 36
	17,091½	6.85	8,585	11,295	41 07	34 09	468,495	421,578	551,848	81	.92	.....	.....	7,798,816 26

COUNTY TABULAR STATEMENT—Continued.

COUNTIES.	RECEIPTS.		EXPENDITURES.				RESOURCES AND LIABILITIES.	
	State appropriation	From taxes and all other sources, except State appropriation	Total receipts	Cost school houses, purchasing building, renting, &c.	Paid for teachers' wages	Paid for fuel & contingencies, fees of collectors, &c., and for other expenses	Total expenditures	Resources
1 Adams.....	\$5,302 74	\$40,777 65	\$46,080 40	\$4,621 82	\$26,312 05	\$10,120 78	\$41,054 65	\$6,971 95
2 Allegheny.....	45,405 61	1,254,627 46	1,300,033 07	330,083 67	472,607 43	379,844 87	1,182,607 27	1,252,577 90
3 Armstrong.....	6,122 24	93,409 73	100,331 97	23,441 98	49,768 24	20,811 25	94,021 47	18,588 26
4 Beaver.....	7,186 92	79,797 57	86,984 49	17,196 93	40,473 28	24,604 48	82,184 69	3,618 36
5 Bedford.....	5,090 41	52,424 77	57,515 18	7,601 60	35,677 99	12,074 47	55,354 06	3,177 94
6 Berks.....	19,470 30	220,420 07	239,890 37	54,964 46	122,973 46	62,600 87	240,538 79	11,582 16
7 Blair.....	6,666 75	85,910 00	92,576 75	23,957 11	51,782 12	16,440 15	92,179 38	5,059 11
8 Bradford.....	9,511 64	96,102 77	105,614 41	11,545 01	56,547 05	26,092 46	94,184 52	7,464 54
9 Bucks.....	12,108 89	138,103 86	150,212 75	24,758 79	84,193 57	32,378 17	141,380 53	13,513 81
10 Butler.....	6,873 19	81,770 36	88,643 55	19,931 11	44,659 49	16,739 32	81,379 92	8,001 89
11 Cambria.....	6,381 34	80,526 94	86,908 28	16,552 73	43,652 73	16,679 61	76,885 09	12,039 02
12 Cameron.....	6,528 64	20,671 09	27,199 73	4,259 49	8,473 00	5,988 75	18,721 24	2,723 54
13 Carbon.....	4,954 82	76,622 83	81,577 65	24,254 98	38,848 63	22,979 89	86,083 53	5,255 76
14 Centre.....	7,281 87	68,705 15	75,986 22	19,955 20	40,908 20	16,650 16	77,513 56	14,735 11
15 Chester.....	14,566 18	212,992 15	227,558 33	33,984 13	109,919 09	56,119 14	200,032 36	18,869 01
16 Clarion.....	3,999 98	50,903 45	54,903 43	10,504 05	29,972 26	14,299 13	51,840 91	7,783 92
17 Clearfield.....	4,564 08	68,166 14	72,730 22	15,693 10	40,821 99	14,070 81	70,814 22	20,849 53
18 Clinton.....	4,631 07	55,311 04	59,942 11	6,714 63	30,192 32	19,070 81	55,977 76	6,104 41
19 Columbia.....	5,420 42	6,472 37	11,892 79	18,867 78	37,367 49	12,698 21	68,903 48	6,431 74
20 Crawford.....	14,145 69	133,853 87	167,999 56	14,434 90	74,582 62	107,974 63	196,992 15	17,495 74
21 Cumberland.....	9,642 09	83,688 59	92,782 93	19,096 14	59,344 70	18,551 29	96,992 13	9,839 84
22 Dauphin.....	11,544 84	186,183 93	196,183 93	28,803 78	94,786 75	72,185 45	195,775 98	10,909 97
23 Delaware.....	6,312 09	136,807 67	143,119 76	20,649 95	60,929 72	47,242 13	134,821 80	7,168 65
24 Elk.....	1,352 76	30,940 68	32,293 44	5,022 79	96,628 83	8,929 32	30,280 94	13,282 57
25 Erie.....	12,089 84	196,820 91	208,910 75	41,645 04	90,664 47	46,097 80	178,407 31	7,213 30
26 Fayette.....	7,353 45	92,936 49	100,289 94	17,045 86	51,284 28	23,183 59	91,513 75	5,695 49
27 Forest.....	10,522 00	10,600 18	11,122 18	1,491 61	6,558 00	1,593 69	9,643 30	1,099 37
28 Adams.....	\$5,302 74	\$40,777 65	\$46,080 40	\$4,621 82	\$26,312 05	\$10,120 78	\$41,054 65	\$6,971 95
29 Allegheny.....	45,405 61	1,254,627 46	1,300,033 07	330,083 67	472,607 43	379,844 87	1,182,607 27	1,252,577 90
30 Armstrong.....	6,122 24	93,409 73	100,331 97	23,441 98	49,768 24	20,811 25	94,021 47	18,588 26
31 Beaver.....	7,186 92	79,797 57	86,984 49	17,196 93	40,473 28	24,604 48	82,184 69	3,618 36
32 Bedford.....	5,090 41	52,424 77	57,515 18	7,601 60	35,677 99	12,074 47	55,354 06	3,177 94
33 Berks.....	19,470 30	220,420 07	239,890 37	54,964 46	122,973 46	62,600 87	240,538 79	11,582 16
34 Blair.....	6,666 75	85,910 00	92,576 75	23,957 11	51,782 12	16,440 15	92,179 38	5,059 11
35 Bradford.....	9,511 64	96,102 77	105,614 41	11,545 01	56,547 05	26,092 46	94,184 52	7,464 54
36 Bucks.....	12,108 89	138,103 86	150,212 75	24,758 79	84,193 57	32,378 17	141,380 53	13,513 81
37 Butler.....	6,873 19	81,770 36	88,643 55	19,931 11	44,659 49	16,739 32	81,379 92	8,001 89
38 Cambria.....	6,381 34	80,526 94	86,908 28	16,552 73	43,652 73	16,679 61	76,885 09	12,039 02
39 Cameron.....	6,528 64	20,671 09	27,199 73	4,259 49	8,473 00	5,988 75	18,721 24	2,723 54
40 Carbon.....	4,954 82	76,622 83	81,577 65	24,254 98	38,848 63	22,979 89	86,083 53	5,255 76
41 Centre.....	7,281 87	68,705 15	75,986 22	19,955 20	40,908 20	16,650 16	77,513 56	14,735 11
42 Chester.....	14,566 18	212,992 15	227,558 33	33,984 13	109,919 09	56,119 14	200,032 36	18,869 01
43 Clarion.....	3,999 98	50,903 45	54,903 43	10,504 05	29,972 26	14,299 13	51,840 91	7,783 92
44 Clearfield.....	4,564 08	68,166 14	72,730 22	15,693 10	40,821 99	14,070 81	70,814 22	20,849 53
45 Clinton.....	4,631 07	55,311 04	59,942 11	6,714 63	30,192 32	19,070 81	55,977 76	6,104 41
46 Columbia.....	5,420 42	6,472 37	11,892 79	18,867 78	37,367 49	12,698 21	68,903 48	6,431 74
47 Crawford.....	14,145 69	133,853 87	167,999 56	14,434 90	74,582 62	107,974 63	196,992 15	17,495 74
48 Cumberland.....	9,642 09	83,688 59	92,782 93	19,096 14	59,344 70	18,551 29	96,992 13	9,839 84
49 Dauphin.....	11,544 84	186,183 93	196,183 93	28,803 78	94,786 75	72,185 45	195,775 98	10,909 97
50 Delaware.....	6,312 09	136,807 67	143,119 76	20,649 95	60,929 72	47,242 13	134,821 80	7,168 65
51 Elk.....	1,352 76	30,940 68	32,293 44	5,022 79	96,628 83	8,929 32	30,280 94	13,282 57
52 Erie.....	12,089 84	196,820 91	208,910 75	41,645 04	90,664 47	46,097 80	178,407 31	7,213 30
53 Fayette.....	7,353 45	92,936 49	100,289 94	17,045 86	51,284 28	23,183 59	91,513 75	5,695 49
54 Forest.....	10,522 00	10,600 18	11,122 18	1,491 61	6,558 00	1,593 69	9,643 30	1,099 37
55 Adams.....	\$5,302 74	\$40,777 65	\$46,080 40	\$4,621 82	\$26,312 05	\$10,120 78	\$41,054 65	\$6,971 95
56 Allegheny.....	45,405 61	1,254,627 46	1,300,033 07	330,083 67	472,607 43	379,844 87	1,182,607 27	1,252,577 90
57 Armstrong.....	6,122 24	93,409 73	100,331 97	23,441 98	49,768 24	20,811 25	94,021 47	18,588 26
58 Beaver.....	7,186 92	79,797 57	86,984 49	17,196 93	40,473 28	24,604 48	82,184 69	3,618 36
59 Bedford.....	5,090 41	52,424 77	57,515 18	7,601 60	35,677 99	12,074 47	55,354 06	3,177 94
60 Berks.....	19,470 30	220,420 07	239,890 37	54,964 46	122,973 46	62,600 87	240,538 79	11,582 16
61 Blair.....	6,666 75	85,910 00	92,576 75	23,957 11	51,782 12	16,440 15	92,179 38	5,059 11
62 Bradford.....	9,511 64	96,102 77	105,614 41	11,545 01	56,547 05	26,092 46	94,184 52	7,464 54
63 Bucks.....	12,108 89	138,103 86	150,212 75	24,758 79	84,193 57	32,378 17	141,380 53	13,513 81
64 Butler.....	6,873 19	81,770 36	88,643 55	19,931 11	44,659 49	16,739 32	81,379 92	8,001 89
65 Cambria.....	6,381 34	80,526 94	86,908 28	16,552 73	43,652 73	16,679 61	76,885 09	12,039 02
66 Cameron.....	6,528 64	20,671 09	27,199 73	4,259 49	8,473 00	5,988 75	18,721 24	2,723 54
67 Carbon.....	4,954 82	76,622 83	81,577 65	24,254 98	38,848 63	22,979 89	86,083 53	5,255 76
68 Centre.....	7,281 87	68,705 15	75,986 22	19,955 20	40,908 20	16,650 16	77,513 56	14,735 11
69 Chester.....	14,566 18	212,992 15	227,558 33	33,984 13	109,919 09	56,119 14	200,032 36	18,869 01
70 Clarion.....	3,999 98	50,903 45	54,903 43	10,504 05	29,972 26	14,299 13	51,840 91	7,783 92
71 Clearfield.....	4,564 08	68,166 14	72,730 22	15,693 10	40,821 99	14,070 81	70,814 22	20,849 53
72 Clinton.....	4,631 07	55,311 04	59,942 11	6,714 63	30,192 32	19,070 81	55,977 76	6,104 41
73 Columbia.....	5,420 42	6,472 37	11,892 79	18,867 78	37,367 49	12,698 21	68,903 48	6,431 74
74 Crawford.....	14,145 69	133,853 87	167,999 56	14,434 90	74,582 62	107,974 63	196,992 15	17,495 74
75 Cumberland.....	9,642 09	83,688 59	92,782 93	19,096 14	59,344 70	18,551 29	96,992 13	9,839 84
76 Dauphin.....	11,544 84	186,183 93	196,183 93	28,803 78	94,786 75	72,185 45	195,775 98	10,909 97
77 Delaware.....	6,312 09	136,807 67	143,119 76	20,649 95	60,929 72	47,242 13	134,821 80	7,168 65
78 Elk.....	1,352 76	30,940 68	32,293 44	5,022 79	96,628 83	8,929 32	30,280 94	13,282 57
79 Erie.....	12,089 84	196,820 91	208,910 75	41,645 04	90,664 47	46,097 80	178,407 31	7,213 30
80 Fayette.....	7,353 45	92,936 49	100,289 94	17,045 86	51,284 28	23,183 59	91,513 75	5,695 49
81 Forest.....	10,522 00	10,600 18	11,122 18	1,491 61	6,558 00	1,593 69	9,643 30	1,099 37

28 Franklin.....	7, 634 67	79, 225 75	86, 860 42	14, 127 67	49, 698 47	18, 797 31	82, 623 45	2, 704 68	26, 316 16
29 Fulton	1, 799 64	12, 097 46	13, 897 10	1, 705 34	8, 930 00	2, 375 50	13, 010 84	1, 342 78	1, 342 78
30 Greene.....	4, 569 24	43, 683 31	48, 252 55	7, 939 21	28, 991 52	8, 380 87	45, 211 60	6, 606 25	2, 799 75
31 Huntington.....	5, 570 22	62, 349 32	67, 919 54	13, 573 06	39, 573 10	12, 569 11	65, 898 87	3, 460 55	10, 045 00
32 Indiana.....	6, 844 34	71, 691 72	78, 535 06	6, 711 07	42, 665 04	16, 070 94	67, 447 05	13, 850 73	13, 488 57
33 Jefferson.....	4, 075 74	45, 947 43	50, 023 17	10, 366 53	27, 280 60	8, 349 64	45, 996 77	8, 783 42	8, 205 28
34 Juniata.....	2, 676 13	28, 357 31	31, 033 44	7, 136 09	17, 449 64	6, 594 44	31, 180 17	2, 031 61	2, 968 86
35 Lancaster.....	23, 595 31	234, 874 31	278, 469 72	53, 079 79	134, 608 17	50, 465 40	260, 153 36	36, 576 27	62, 165 89
36 Lawrence.....	4, 563 66	59, 022 96	63, 586 62	14, 119 09	36, 004 23	10, 148 16	60, 271 48	5, 126 62	4, 224 62
37 Lebanon.....	6, 078 83	72, 739 66	78, 818 49	16, 565 43	45, 280 83	14, 233 77	76, 080 03	4, 582 46	37, 759 61
38 Leigh.....	13, 031 37	198, 425 74	211, 457 11	53, 995 75	85, 262 91	62, 503 66	201, 782 32	9, 631 17	428, 806 50
39 Luzerne.....	42, 938 24	465, 202 63	508, 140 87	189, 670 29	231, 544 26	105, 131 69	520, 346 24	40, 379 80	140, 684 49
40 Lycoming.....	8, 783 95	110, 403 85	119, 187 80	61, 053 54	61, 053 54	26, 676 88	114, 436 22	32, 056 94	32, 056 94
41 McKean.....	1, 605 34	34, 980 40	36, 585 74	11, 250 03	58, 837 48	6, 465 87	30, 302 82	11, 339 40	7, 083 06
42 Mercer.....	9, 466 53	99, 720 50	100, 187 12	18, 628 29	52, 337 92	23, 032 47	100, 018 24	19, 443 24	15, 289 74
43 Mifflin.....	3, 240 03	40, 713 31	44, 093 34	14, 774 42	21, 311 05	9, 366 39	45, 451 86	3, 601 50	26, 950 98
44 Monroe.....	3, 587 06	27, 568 65	31, 155 71	4, 718 84	18, 785 56	7, 136 96	30, 661 36	1, 781 96	3, 682 28
45 Montgomery.....	13, 709 93	188, 921 65	204, 622 58	43, 708 06	71, 504 46	42, 380 91	157, 593 43	13, 952 72	69, 082 84
46 Montour.....	2, 804 95	32, 583 49	35, 388 44	5, 905 36	21, 056 83	7, 734 59	34, 696 78	873 31	23, 899 57
47 Northampton.....	11, 693 03	194, 732 77	206, 425 80	38, 963 03	91, 703 41	47, 480 64	178, 147 08	7, 786 90	159, 307 34
48 Northumberland.....	8, 751 65	91, 618 34	100, 369 99	16, 662 04	58, 887 38	20, 496 63	90, 046 05	7, 812 20	23, 883 31
49 Perry.....	5, 031 45	52, 495 31	57, 556 79	14, 553 86	28, 200 47	9, 922 36	52, 676 69	3, 554 12	14, 733 82
50 Pike.....	1, 396 39	12, 647 50	14, 043 89	2, 326 99	7, 650 97	4, 054 73	14, 032 69	725 58	4, 608 90
51 Potter.....	2, 385 87	30, 102 56	32, 488 43	6, 564 85	14, 782 64	4, 700 25	26, 047 74	10, 424 24	1, 192 26
52 Schuylkill.....	18, 753 43	381, 696 05	400, 449 49	107, 094 92	186, 349 11	81, 809 78	375, 253 84	22, 532 39	153, 133 36
53 Snyder.....	2, 765 43	29, 358 21	32, 123 64	7, 713 41	13, 290 95	4, 639 48	27, 063 84	7, 144 00	1, 459 29
54 Somerset.....	4, 701 73	43, 406 65	53, 406 65	9, 223 77	30, 267 91	8, 531 88	48, 023 56	6, 464 20	1, 261 36
55 Sullivan.....	1, 061 84	11, 810 32	12, 872 16	1, 846 19	7, 476 92	1, 984 81	11, 307 92	3, 019 61	5, 666 26
56 Susquehanna.....	7, 453 19	53, 904 71	64, 357 90	22, 125 71	97, 000 16	13, 169 20	72, 304 07	5, 464 10	5, 666 26
57 Tioga.....	6, 454 58	106, 480 94	113, 335 52	46, 666 38	43, 012 11	21, 049 38	110, 737 87	10, 646 72	18, 113 52
58 Union.....	3, 413 50	25, 381 50	28, 824 50	988 46	18, 922 29	4, 964 43	24, 875 18	5, 102 67	18, 113 52
59 Venango.....	8, 200 09	122, 332 00	130, 532 09	19, 609 90	67, 831 70	37, 038 84	124, 501 55	13, 501 95	55, 820 62
60 Warren.....	4, 402 77	66, 040 01	70, 443 78	8, 607 31	36, 632 35	15, 932 19	61, 171 85	13, 160 58	13, 155 88
61 Washington.....	9, 355 11	105, 608 10	114, 963 21	22, 698 31	65, 119 44	22, 092 54	109, 910 29	9, 944 70	7, 485 81
62 Wayne.....	5, 486 48	46, 224 48	50, 710 96	6, 402 60	27, 552 32	10, 737 36	44, 712 78	6, 579 85	9, 275 86
63 Westmoreland.....	10, 812 80	141, 615 44	152, 428 24	33, 482 50	75, 734 81	74, 821 94	184, 038 81	24, 427 88	19, 253 51
64 Wyoming.....	2, 698 47	21, 614 91	24, 313 38	2, 382 11	13, 638 46	4, 603 26	3, 623 83	3, 995 43	1, 210 76
65 York.....	13, 552 99	124, 283 53	137, 836 52	20, 505 12	75, 598 68	31, 961 36	128, 065 16	11, 685 20	33, 390 04
66 Philadelphia.....	536, 625 13	7, 247, 293 63	7, 783, 918 76	1, 722, 103 54	3, 755, 399 63	1, 961, 341 60	7, 438, 844 77	648, 155 38	4, 090, 329 30
		337, 391 29	991, 475 89	337, 391 29	991, 475 89	486, 974 18	1, 813, 811 36		
		2, 059, 464 83	4, 746, 875 52	2, 059, 464 83	4, 746, 875 52	2, 448, 315 78	9, 254, 656 13		

SOLDIERS' ORPHAN SCHOOLS.

The number of orphan children under the care of the State on the first day of September, 1875, was 2,695, being a falling off of 273 during the year, and of 965 since 1871, the year in which the highest number at any time in the schools was reached. The number of children admitted into the schools during the year was 519, including some 200 admitted under the acts of 1874 and 1875 in relation to the children of sick and crippled soldiers, and to children born since January 1, 1866.

The system cost the past year \$423,693 76, against a cost last year of \$450,879 49. Of this sum, \$7,000 were expended in preparing, at the several State Normal Schools, discharged orphan girls of suitable age and qualifications, for teachers. The whole State expenditure for soldiers' orphans since the inauguration of the system is, as shown by the several annual reports, \$4,438,226 02, and I estimate that for the present and the three succeeding years that the system will remain in operation, \$1,400,000 more, including the amount now appropriated but not expended, will be required. The balance in the State Treasury at the end of the year to the credit of the Department was, after meeting all liabilities, \$71,125 63.

The following is a comprehensive summary of the system :

COMPREHENSIVE SUMMARY.

Number of institutions in which there are soldiers' orphans,	28
Reduction in the number since 1871	16
Number of orphans in schools and homes, May 31, 1875...	2,789
Number admitted on order from May 31, 1874, to September 1, 1875	519
Number of discharges from May 31, 1874, to September 1, 1875.....	929
Number of orphans in charge of the State, Sept. 1, 1875....	2,695
Number of orders of admission issued since system went into operation.....	8,329
Number of orphans admitted since system went into operation.....	7,858
Number of applications now on file.....	67
Probable number of orphans that will be cared for under the system.....	8,500
Cost of system for the past year.....	\$423,693 76
Whole cost of the system since going into operation as shown by the several annual reports to May 31, 1875....	4,438,226 02
Appropriations made but unexpended.....	400,000 00
Probable amount of future appropriations that will be needed,	<u>1,000,000 00</u>

GENERAL FINANCIAL STATEMENT.

This statement shows the exact financial condition of the Department at the end of the school year.

The moneys placed at the disposal of the Department for the year ending May 31, 1875, were as follows :

State appropriation.....	\$440,000 00	
Unexpended balance for 1874.....	53,819 39	
Amount accruing from loans.....	1,000 00	
		\$494,819 39
Expended for education, maintenance and clothing.....	\$404,801 10	
For soldiers' orphans at Normal schools.....	7,000 00	
For out-door relief and by special act for Mrs. Mary A. Ketler.....	1,719 02	
Expenses of Department.....	10,173 64	
		423,693 76
Balance in treasury to the credit of the Department.....		71,125 63

NIGHT SCHOOLS.

THEIR NECESSITY IN MINING AND MANUFACTURING TOWNS.

The present school law of this Commonwealth permits the directors to appropriate a portion of the school money in their hands for the purpose of sustaining night schools. The wants of the day schools have generally been so pressing, that only in a very few instances has there been any money expended by the directors in the establishment and encouragement of night schools. This Department would therefore suggest that the Legislature appropriate a certain sum of money, (exclusive of the amount already appropriated for school purposes,) to be termed the Night School Fund, and make it obligatory upon the directors in certain localities to be designated by law, to apply said fund in payment of teachers' wages, and the purchase of any needful articles necessary to maintain night schools in mining, manufacturing and populous towns, for at least five months in the year, where youth of both sexes, between the ages of fourteen and eighteen years, may receive instruction in the common school branches.

It is due the youth of the Commonwealth, who labor through the day, that additional provision be made by the Legislature for their instruction and education.

Without desiring to enter upon the discussion of this subject, it might be well to mention the fact, that in localities where night schools have been

in operation, either in mining or manufacturing towns, they have universally been attended with good results, and the scholars have made more satisfactory progress, according to the number of hours taught, than those of the same age in the day schools.

Boys and girls who have a reasonable amount of labor to perform through the day, are in a better condition to study than those who go to school daily, having no manual or physical exercise. The muscles, nerves and brain power of those who work, are in a healthy state, while in too many instances the day scholars are lacking the vital energy essential to the successful accomplishment of their task. It is the experience of almost every teacher, who has taught in the day and night school, that the scholars in the night school make the greater progress, from the fact, that they are physically and mentally better prepared for the duty assigned them. It may be urged by some if these deductions are correct, it were better to abandon the day school; no, that is not the logical sequence.

The deductions and inferences are, that manual labor better prepares the student for mental culture; that could we establish schools throughout the Commonwealth, where the student was required to perform certain manual tasks in addition to their regular course of study, then would greater progress be obtained, and our graduates be both healthy and wise.

We resort to the gymnasium now to supply the deficiency in physical action in school life, and in one sense lose the muscular force expended. By instituting manual labor, we husband this force and utilize it.

There are some well founded objections to the gymnasium, the exercises in many instances being too violent and excessive. This extreme view in relation to the gymnasium might be placed as an offset to the objection raised against manual labor in our schools, viz: that it fatigues the students and incapacitates them for study. There are sufficient reasons, however, for retaining the gymnasium in our public schools. There is a safe medium ground, and the reasons for the encouragement and establishment of night schools are manifold.

Without attempting to discuss the details of the proposed bill, or naming the amount of money to be appropriated for that purpose, this Department most earnestly and respectfully recommend to the consideration of the Legislature this subject of night schools, and suggest that it take suitable action in the premises, by framing a law that will make the necessary appropriation, placing the general supervision and direction of this matter in the hands of the Superintendent of Public Instruction, and making it a part of our great common school system.

THE PENNSYLVANIA STATE COLLEGE.

[The following article was prepared by request especially for this Bureau.]

HISTORY.

Organization.—At the second annual meeting of the Pennsylvania State Agricultural Society, held in Harrisburg, January 18, 1853, a report was made on the advantages to be derived from an agricultural school, and the auspiciousness of time for starting such an enterprise.

In accordance with the suggestions of this report, a resolution was adopted, calling a State convention of the friends of agriculture to adopt measures for the establishment of an institution which should be adapted to the special instruction of farmers, and which should have a model farm attached. The convention thus called met in March, 1853, and, having unanimously approved the project, appointed a committee to carry it into effect. In accordance with the decision of this committee the next Legislature granted an act of incorporation, approved April 13, 1854. The most noteworthy provision of this act was that which created a board of trustees, "composed of the presidents of the county agricultural societies and the president and vice presidents of the State Agricultural Society, thirteen of whom shall constitute a quorum." It is not strange that when the control of the proposed institution was devolved on a board of more than sixty *ex-officio* members the trustees felt but little responsibility, and *no quorum ever met*.

A second charter was granted, approved February 22, 1855, constituting a board of thirteen members, four of which were *ex-officio*, namely: the Governor, the Secretary of the Commonwealth, the President of the Pennsylvania State Agricultural Society and the principal of the institution, and the remaining nine were elective, the electors being the members of the executive committee of the Pennsylvania State Agricultural Society, together with three representatives, duly chosen by each county agricultural society of the Commonwealth.

Location.—An address to the people of the State was published in July, 1854, setting forth the character of the proposed school, and calling on the citizens of different sections to offer inducements for its location in their midst. In response to this call, proposals to donate farms for a site were received from persons in Erie, Centre, Blair and Franklin counties. Two of these offers, those from Centre and Blair counties were accompanied by

pledges of \$10,000 in aid of the school. The sites thus offered as donations, and also several others which various persons offered to sell to the Board, were visited and examined by a committee consisting of H. N. M'Allister, Governor Pollock, Dr. A. L. Elwyn and Judge Watts.

After full discussion at its successive meetings, the Board, September 12, 1855, selected the site in Centre county, thus securing a farm of two hundred acres, given by Gen. James Irvin, with the pre-emption for five years of two hundred acres adjoining, and a donation of \$10,000, pledged by H. N. M'Allister, Gen. Irvin and A. G. Curtin, in behalf of Centre and Huntingdon counties.

In May, 1856, the contract was made for the erection of the college buildings, and the work began at once; but their completion was greatly delayed, the west wing being ready for use February, 1859, while the remaining portion was not finished until December, 1863. Of the money expended in building, nearly \$100,000 was given by the State, \$10,000 by the State Agricultural Society, the balance being provided by the sale of bonds of the institution, by individual subscriptions, legacies, &c.

Name.—The first charter name, "The Farmers' High School of Pennsylvania," seems to have had its origin in a feeling that the term *college* implied the giving of theoretical instruction only. It was soon found, however, that the charter, by requiring the pupils to be instructed in "the English language, grammar, geography, history, mathematics, chemistry and such other branches of the natural and exact sciences as will conduce to the proper education of a farmer," really placed the school on a collegiate basis, and, accordingly, the name was changed in 1862 to "The Agricultural College of Pennsylvania." In 1867, the college, having then come under the law of Congress of July 2, 1862, was compelled to extend its course of instruction in order more fully to comply with the educational requirements of that act, which are embodied in the following extract: "The leading object shall be, without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic arts, in such manner as the Legislature of the State might prescribe, in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions of life."

This law, equally binding with the charter, reconstituted the institution, so as to be no longer merely an agricultural school, but a scientific school in the educational interests of industrial life, giving military instruction and not excluding purely classical studies. As the scope of the institution had thus been greatly extended, the term "agricultural college" no longer expressed its real character, but, in fact, prevented many students from entering. That its name might not longer convey the erroneous impression

that the college was designed for those alone who intended to be farmers, that name was changed (January, 1874) to "The Pennsylvania State College."

Endowment.—In its earlier years the college was without endowment, and therefore wholly dependent on the receipts from its students. As the entire charge for tuition, boarding, washing, lights, fuel, and the use of text-books, was only \$100 per year of forty weeks, the result, even in the cheap times preceding the rebellion, was a loss rather than a gain. Although the charges were afterwards increased so as to cover the actual expense of boarding and lodging, yet during the two years after the college was bound by the provisions of the Land Grant act, but before there was any income from the proceeds of that grant, a floating debt of considerable amount was incurred for purposes of instruction.

The Congressional Land Grant of July, 1862, was accepted by the State of Pennsylvania, in 1863, and the scrip, for a small part of the 780,000 acres thus granted, was sold during the next four years. By the Legislature of 1867, the State Board of Commissioners of the Agricultural College Land Grant, consisting of the Governor, the Surveyor General and the Auditor General, was instructed to sell the remainder of the scrip, invest nine-tenths of the whole proceeds, as required by the act of Congress, in bonds of the United States or of the State of Pennsylvania—the interest of which should be paid to the college—and hand over the remaining one-tenth to the trustees of the college, to be used in the purchase of experimental farms.

The conditions upon which this fund was thus appropriated to the college were as follows: "That the trustees shall establish, conduct and maintain, in connection with the college, three experimental farms, one near it, under the immediate supervision of the Professor of Agriculture in the institution; another east, and the other west, upon lands of diversified quality, under the immediate supervision, respectively, of an Assistant Professor of Agriculture."

As a large amount of agricultural college land scrip had already been sold by other States, much of it at very low figures, and could be bought of speculators as low as sixty cents per acre, the entire proceeds of the grant to the State of Pennsylvania were only \$439,186 80. Of this amount, \$395,300 30 was invested in bonds, and \$43,886 50 was held for the purchase of experimental farms. As only \$18,000 of this fund had been invested previous to 1867, the college realized but little income from this source, until after the investment of August, 1867—the first instalment of interest from which became due February, 1868. The annual interest received by the State Board was about \$23,000; but as a portion of this was paid in gold, (which in 1868 brought a high premium,) the net income of

the college from the endowment fund was, for several years, more than \$24,000 per annum.

As the premium for gold diminished and the U. S. 5-20 bonds were liable to be called in for redemption at any time, in which case the premium paid for these bonds would be lost by the State, Hon. J. M. Campbell, Surveyor General—one of the Commissioners of the Agricultural College Land Scrip Fund—recommended, in his official report for 1871, that these commissioners should be authorized to dispose of all the bonds belonging to this fund—which bonds, at current rates, would sell for nearly \$407,000—and invest the whole amount of proceeds in a bond of the State running for a long period. He also suggested that, in view of the fact that only the want of efficient legislation prevented the sale of the land scrip at a much earlier date, when the market was not overstocked and the scrip commanded a much higher price, it would be “highly proper and creditable to the State to add a sufficient sum to this fund to make it amount to \$500,000.”

This suggestion was made a law by the act of April 3, 1872, and there was issued a registered bond of the Commonwealth for \$500,000, payable to the Agricultural College Land Scrip Fund after fifty years, with interest at the rate of six per cent. per annum, payable semi-annually to the College.

Since the passage of this act the College has been in receipt of an annual income of \$30,000 from its endowment fund.

As already stated, the College had, before coming into possession of this income, incurred a considerable debt by endeavoring to bring its educational standard fully up to the requirements of the acts of Congress and of the Legislature. The interest of this debt and the annual grant of \$6,000 to the experimental farms were a heavy drain on the College income. These outlays now having been reduced somewhat and a sinking fund of \$6,000 per annum created for the extinguishment of the College debt, the financial outlook is more hopeful. It is nevertheless true that the other income of the College, derived from the farm, &c., must be managed very economically in order to pay expenses not chargeable to the educational department and to make necessary repairs, as the law of Congress expressly prohibits the application of any portion of the fund, or the interest thereon, “directly or indirectly, under any pretense whatever, to the purchase, erection, preservation or repair of any building or buildings.”

The foregoing brief synopsis of the legislative and financial history of the Pennsylvania State College, permits the introduction of a few pages on the *educational aims* and present *educational status* of that institution. The

first can best be understood by presenting to the reader an extract from the "Report upon a plan for the organization of colleges for Agriculture and the Mechanic Arts, with especial reference to the organization of the Agricultural College of Pennsylvania," addressed to the board of trustees of the college, by Dr. E. Pugh, president of the faculty, on January 6, 1864. The ripe scholarship, extensive information and minute observation of the workings of similar institutions in this country and in Europe of this founder of the Pennsylvania State College, who died at his post of duty in the above year, entitle his views to the greatest consideration even at this time, the more so as the educational policy of the institution, has in the main, adhered to the lines set by him. Prior to Dr. Pugh's time, crude experimentation marked the educational system of the college and accompanied it through its transformations from the farm school to the agricultural college, and finally to the Pennsylvania State college. In Dr. Pugh's time, however, the foundations of an educational system were laid, which annually expanding, bids fair not only in the near future to realize the hopes of its founder, but adapting itself to the progress in strides of science, to outstrip a programme then thought too vast and grand.

We quote from Dr. Pugh's report :

"The first question that arises in regard to industrial colleges, relates to whether it is desirable that these colleges should be elevated to the highest possible educational standard, with the greatest range of scientific and practical subjects, within the scope of their teaching, in the class room; or whether they should be institutions of an inferior grade, with contracted limits to the variety and extent of the subjects taught in them. This question has long ago been settled in this State, by the action of the State Legislature, in conjunction with the citizens of the State, in appropriating and subscribing money to found the Agricultural College of Pennsylvania, upon a basis capable of being successfully carried out, only upon a large scale, with an efficient course of instruction. But as the extent and character of the course of instruction might still seem open to discussion, the attention of the Board is respectfully invited to its consideration.

First.—A complete system of industrial education must afford the means of making known to students all that can be known of the principles and laws, according to which the industrial operations of life are regulated. If the system does not do this, it fails to afford the student all that he may wish to know, and obliges him to look beyond it, to other systems, to complete his education, in the *very sphere* to which the industrial college is especially devoted. If he must look beyond it for the *highest kinds* of knowledge it claims to teach, he will lose his respect for it, and ultimately seek elementary instruction in the same source to which he is obliged to go for his profounder studies, and thus industrial education is left to obtuse

minds, without aspiration for thoroughness, and the whole system falls to the ground disgraced.

Again.—By no system of education can elementary principles be perfectly taught without there being somewhere in the system a clear understanding of all that is known in the advanced studies of these principles. The purely practical mathematics of elementary instruction would be a contemptible part of education, were it not that they rest upon sublime truths that are demonstrated and understood in the higher grades of mathematical study.

Second.—A system of education which embraces all that can be known of the principles and laws, according to which the industrial operations of life are regulated, must be a very extensive system. This follows from the fact that the industrial operations of life embrace the *entire range* of human industry, and almost the entire range of human thought. The fundamental difference between man as a savage and man as an enlightened being, consists in the *difference in the extent of his industrial operations*. The characteristic peculiarities of the present age, by which it is distinguished from preceding ages, consist in its more extended industrial operations. The principles and laws which lie at the basis of all industrial operations, must, therefore, be at the basis of human progress, and the study of them as important and as extensive as is human progress itself.

Third.—This extensive system of industrial education must be of a *scientific character*. The industrial operations of life are carried on through the instrumentality of matter and the laws which govern it. They extend to matter in all conceivable forms, and in all known places, and for the systematic and intelligent consideration of matter under all these circumstances, we must call to our aid the entire range of the natural and physical sciences.

Fourth.—A system of scientific education, embracing the entire range of the natural and physical sciences, can only be carried out efficiently upon a large and liberal plan, supported by endowments equal to those of the best educational colleges in the country. This is proven, no less, by a consideration of the subjects to be taught, than by the fact that no American college, however well endowed, has yet succeeded in establishing a complete system of scientific education, and even the European universities, with which the President of Harvard college says that university dare not court comparison, do not pretend yet to have at any one time, a complete course of scientific instruction.

Such, then, will be the magnitude of the demands of industrial education in industrial colleges. We cannot expect to meet them in the present generation, but with their colossal proportions before us, let no man say that endowments equal to half of those of our best literary colleges are too much for our industrial colleges. But rather let their endowments be

doubled and trebled, that America may become, in industrial education, as she already is in the industrial operations of life, the *first country* in the world—that the nations of Europe may be taught in our industrial colleges as they are now taught by our industrial operations.

One other consideration—while the expenses of an industrial system of education are thus great—*those for whom that education is designed* are generally persons of *small income*. The education they receive is calculated to benefit *society in general more especially* than themselves in particular. It does not, like a professional education often does, elevate them from an humble position in life to lucrative posts, in which they can retail out to community the knowledge they have acquired, but it enables them more effectually to perform the several duties of their industrial operations, and thus leads to an ultimate improvement of all those means by which, as before remarked, civilized man is distinguished from the savage; hence, not only the necessity, but the justice to the industrial classes, of endowing industrial colleges.

THE ORGANIZATION OF AN INDUSTRIAL COLLEGE.

Before entering into the discussion of the organization of an *industrial* college it may not be amiss to present the income and expenditure of three of the leading *literary* colleges of the United States, and we submit the following table prepared from the treasurer's reports of the three colleges named:

TABLE showing source of income and expenditure for Harvard, Yale and Columbia.

ITEMS OF INCOME FROM	ANNUAL INCOME OF		
	Harvard.	Yale.	Columbia.
Funds invested, rents, &c.....	\$89,039 47	\$28,066 62	\$63,652 52
Tuition	50,782 35	40,563 15	9,955 33
Sundries.....	12,753 89	4,411 00	.....
Amount total.....	152,575 71	73,040 77	73,607 85

ITEMS OF EXPENDITURE FOR	ANNUAL EXPENDITURE OF		
	Harvard.	Yale.	Columbia.
Salaries in academical department.....	\$44,650 00	\$24,268 38	\$47,239 18
Salaries in other departments.....	23,158 96	11,619 16	5,206 79
Beneficiary fund, free scholarship, &c.....	7,591 12	4,873 40	*
Library	13,894 64	3,328 80	1,012 50
Museum and apparatus.....	4,815 33	954 15	100 86
Scientific department.....	11,368 72	3,987 50	.....
Sundries.....	47,951 73	29,151 02	25,710 34
Amount total.....	153,431 50	73,182 41	79,269 67

*Columbia college gives gratuitous instruction to a number of students.

As an example of the source of the several items of income above given, we quote from the recent treasurer's report of Harvard University:

Fund appropriated to academical department.....	\$183,440 24
Do.....do.....scholarships.....	60,326 54
Do.....do.....different professorships.....	338,970 96
Do.....do.....library.....	27,582 16
Do.....do.....law school.....	22,943 63
Do.....do.....observatory.....	110,665 74
Do.....do.....theological school.....	110,650 19
Do.....do.....scientific schools.....	130,711 55
Do.....do.....medical school.....	37,447 79
Do.....do.....special purposes.....	519,796 93
Do.....do.....conversion of Indians.....	15,290 04
Do.....do.....minister and school master.....	4,558 34
Do.....do.....Zoological museum.....	51,348 38
Total.....	<u>1,613,884 11</u>

Persons who are not familiar with the expenses involved in carrying on first class institutions, might be filled with amazement at, what would seem, the prodigality of spending the large sum of \$152,575 71 annually in one educational institution. And when such persons contemplate the sum of \$1,613,884 as the *invested endowment* of such an institution, they are unable to comprehend why an educational institution can want so much property; and yet when we come to examine the expenditures in the different departments of Harvard University, we find the strictest economy exercised in all of them. Every dollar that is spent goes out of the treasury to bring in some *essential* element of power, upon which the success of the great educational establishment is partially dependent.

If we examine the details of the expenditure of the \$44,680 which is paid for instruction in the academical department, we will find it divided among forty-three professors, assistants and superintendents, nearly all of whom receive lower salaries than men of the same degree of attainments and application would receive in any other profession than that of teaching.

Among them we find Agassiz, the greatest living comparative anatomist and zoologist, whom Louis Napoleon offered a large salary, and a seat in the French Senate, would he honor the French court by his presence in Paris.

Professor Pierce, the greatest mathematician in the world.

Professor Gray, the greatest American botanist, and other such men, receive less salaries at Harvard than the income of many second class professional men in the country towns of our State. If we follow these men to the respective fields of their labor in the University, we will find all their

services needed to give Harvard the high character as an educational institution which it maintains. And although Harvard may justly claim the right to stand at the head of the educational institutions of America, yet with all its resources, its educational standard is much below that of the best universities of Europe.

The present president, who is justly accounted one of the finest of American scholars, in his recent inaugural address to the overseers of the college, says, in considering the affairs of the University, that "while gratified to note the evidence of her prosperity, he is even more forcibly struck with the opportunity still offered for an advantageous employment of still larger means."

"No department," continues he, "either in the college or professional schools, can be said to stand above the need of improvement, and few if any can court comparison with the most thoroughly furnished schools of Europe."

The sum of \$11,368 72 is applied to the scientific school of the University, and yet the graduates of this school are constantly going to Europe to complete their scientific education, in the more extensive course of instruction in the universities of Germany and France.

Several thousand dollars are annually appropriated, as may be seen by table II, to organizing and filling up libraries and scientific museums, and yet these are far behind their prototypes in the old world, or what every scientific man must recognize as complete collections of the objects to which they relate.

The sum of nearly \$8,000 is annually expended for the education of meritorious, indigent students, and yet this fund is inadequate to the demands upon it. The recent president *pro tem.* of the university, in an address to the trustees, says, "we have now thirty-seven scholarships for indigent students. It is impossible to over-estimate their beneficial influence upon the college. They attract to the university a large number of the very best of our students, who otherwise would seek less expensive colleges. They have raised to a degree which those not connected with the school can hardly appreciate, the general standard of scholarship and of character; they might be multiplied with added advantage to the institution."

"Many of these students submit to severe privations, struggle on with depressing poverty, and incur a burden of indebtedness which must weigh heavily on them for many subsequent years."

He then goes on to urge the necessity of securing the means to increase the number of scholarships.

And thus it will be with all the items of this \$153,430 53 expended annually to support Harvard University; instead of the amount being too large for an educational institution of the highest character to employ advantageously, a close examination will show that it is not large enough.

In like manner we might examine into the details of the annual expenditure of the \$79,269 47 by Columbia College, and show that all this large sum is used for indispensable purposes in the educational system of that institution. The fact is worthy of note, that notwithstanding the college has an income of over \$60,000 from endowment, and that its price of tuition is \$50 00 per annum for students, yet during the year 1861 its expenditure exceeded its income by \$5,660 62

No less decisive are the facts shown by the receipts and expenditures of Yale college.

Of about \$78,000 expenditure by that institution, nearly one-half is derived from endowments, and no one familiar with the internal workings of the educational system of Yale would fail to see, as at Harvard, the necessity for a larger expenditure of means.

One prominent feature in connection with all these educational institutions of large pecuniary resources, is the fact that they are still the subject of more liberal donations than any other educational institutions in the country.

Year after year the repeated solicitations of the friends of these institutions for an extension of their pecuniary resources, have been met by liberal appropriations and princely endowments, from men who are thoroughly acquainted with the necessities and the workings of them. The fact that shrewd business men of extended information, who are well acquainted with the workings of these institutions, are willing to subscribe liberally to their further endowment, is an indubitable evidence that the large sums spent annually for their support are really required for the maintenance of educational institutions of high order.

Having shown the extent of the resources of some of the best American colleges, and endeavored to show that industrial colleges have need of resources quite as ample, the attention of the Board is now invited to the consideration of the organization of an industrial college. For the sake of simplicity, I would present this subject under several different headings:

1. *Officers and Assistants.*—Under this heading is embraced the consideration of the number and kind of men required to carry on all the varied operations, and perform all the duties of the industrial college.
2. *College buildings and outbuildings—the number, kind and quality.*
3. Apparatus and natural history collections, museums, library and reading room.
4. Means of scientific investigation.
5. Prizes, beneficiary fund for indigent student, free scholarships, &c.
6. Plan and course of instruction.

OFFICERS AND ASSISTANTS.

These will embrace a presiding officer, professors, assistant professors, tutors and superintendents. I would here beg leave to remark that in the consideration of the qualifications of the several persons to whom the above titles refer I have labored to look at the subject as a *purely intellectual question*, divested entirely of any personal feeling or prejudice, which, as one of the parties named, I might be supposed to have in the matter. If I have erred in my estimate of the character and quality of the duties of each of the officers and assistants, I trust the Board will have the forbearance to attribute my error to a mistake in judgment, rather than to a selfish bias in favor of my own course of action. To commence, then, with the

PRESIDENT OF AN INDUSTRIAL COLLEGE.

The presiding officer of any large educational institution occupies one of the most responsible positions to which it is possible for man to attain. To use the language of one of the most distinguished friends of education in America, when speaking of the late President Felton, of Harvard University :

“Over every department he is expected to exercise a superintending care. He is the representative of the college before the public. Every parent or guardian who has a son or a ward at the college, looks to the president for information as to his condition, and holds him responsible for his moral welfare and intellectual progress. Toward every student he is expected to sustain the relation of a parent, a kind, sympathizing, watchful and interested friend.”

He should not be a recluse, inaccessible to the student on the one hand, nor should he listen to childish complaints and unmanly petitions on the other. His intercourse with students should be characterized by the most punctilious justice and equity in the enforcement of moral government, and the most unwavering firmness as to the privileges he would grant or refuse to students. He should be willing and able to concentrate all his powers upon the immediate sphere of his duties, rather than seek duties beyond the interest of the college. And lastly, he should possess *as much knowledge as is possible for one man to possess* of all the leading branches to which the educational system of the college is devoted. As a president of a literary college, he should be well versed in language and literature ; as a president of a college for civil and military engineering, he should be well acquainted with mathematics and the physical sciences, and as a president of an industrial college, he should, as far as possible, be thoroughly acquainted with the natural and physical sciences, and their practical ap-

plication to the industrial operations of life. It is *more important* that the presiding officer of a scientific college should be a scientific man, than that the same officer in a literary college should be well versed in literary studies, because the expenditures for *material*, as *auxiliaries to study* in a scientific college must always be great, and they are such as can only be properly *regulated, encouraged and controlled* by a scientific man. No scientific institution ever has been, or ever can be successful as such, the control of which, either *directly* or *indirectly*, is not vested in a scientific man. An appeal to experience, no less than a consideration of the intrinsic nature of the question will demonstrate this fact.

The presiding officer should be familiar with the entire plan according to which all the departments of the institution are carried out, and with the manner in which it is being carried out, and he should be able to take charge of some of the prominent branches taught to the advanced classes, and to consult with individual professors as to plans of scientific research.

PROFESSORS AND ASSISTANTS REQUIRED.

1. *A Professor of Pure Mathematics, and the higher Mechanics and Astronomy.*—A man capable of reading the works of Newton, Laplace and Pierce on mathematics and mechanics, and who could teach descriptive geometry, perspective and drawing. A serious fault with American teachers of mathematics is an inability to give geometrical and stereometrical shape to their mathematical ideas, a consequence of their knowledge of drawing not having kept pace with their study of mathematical analysis, and this again is the result of the great neglect of drawing throughout our whole educational system, from the common schools to the university. Every professor of pure or applied mathematics in an industrial college should be free from this source of inefficiency. This professor should have one assistant, to take charge of the elementary classes.

2. *Professor of Civil Engineering and Applied Mathematics.*—A man familiar with all the details of civil engineering, architecture, mechanical drawing, topography, map making, &c., so that he could not only teach the students the mathematical demonstrations of the class room, but could make them good practical engineers, capable of delineating with accuracy the topography of a country, the route of a railroad, or the construction of an edifice. He should have one assistant, who should be a good draftsman, and who could show the student how to work up the details of a survey.

3. *A Professor of Natural Philosophy and Astronomy, Mechanics and Physics.*—A man familiar with all the recent extended investigations upon light, heat, electricity and optics, an accomplished experimenter, and a good mathematician.

An assistant to prepare experiments for lectures, and to teach classes in the physical laboratory, where students would learn the art of experimentation with philosophical apparatus.

4. *A Professor of Pure Chemistry*, who would give a course of lectures upon the science in general, and who would have charge of the laboratories and of chemical investigations.

An assistant to help prepare lectures and look after classes in the laboratory.

A sub-assistant, to take charge of the chemicals and to help in the laboratory. A chemical department, embracing laboratory instruction, cannot be efficient with less aid than one professor and two assistants.

5. *A Professor of Agricultural Chemistry and Geology*, who would give lectures upon these sciences, and have charge of a laboratory for agricultural chemistry and chemico-agricultural investigations, in the field and in the laboratory, and who would instruct students in the science of field experimentation, in connection with the professor of practical agriculture.

An assistant, to help with field experimentation, and work in the laboratory.

6. *A Professor of Metallurgy, Mining and Mineralogy and Chemical Technology*, who would give practical laboratory instruction in all the processes of metallurgy, and a course of experimental lectures upon all the leading processes of applied chemistry and the industrial arts.

An assistant, to prepare lectures and help in the laboratories.

7. *A Professor of Anatomy, Physiology and Veterinary*, under whom students could be made familiar with the laws of health and disease of animals, and who could carry out investigations in animal physiology. Such a man should be able to make anatomical and pathological preparations of domestic animals, corresponding to those of the human subject used for demonstration in medical colleges.

8. *A Professor of Natural History, more particularly of Zoology, Comparative Anatomy and Entomology*.—A great part of the time of this professor would be consumed making collections, organizing museums and carrying out investigations, as did Prof. Agassiz, at Harvard, and Prof. Glover, at Washington.

9. *A Professor of Botany, Horticulture and Entomology*, who would be devoted to purely botanical instruction, and to the practical application of botany to horticulture, and who would take charge of the botanical gardens, green-house and horticultural department, and who would give instruction in vegetable anatomy and physiology.

One assistant, to take charge of the green-house, and give field instruction in horticulture, and a gardener, to take charge of the garden.

10. *A Professor of Practical Agriculture.*—The man who fills this position should be thoroughly acquainted with the history of agriculture, and with its present condition the world over. He should not only have been a man of close study and observation at home, but of extensive travel abroad. He should be able to judge, from having observed and studied agricultural practice in all its departments all over the civilized world, as to how far the agricultural practice of each country is capable of being improved by the adoption of new methods. He should be familiar with the whole subject of stock-raising and feeding and keeping, with the cultivation of crops, and with the use and improvement of tools, implements and machines, from the rude agricultural implements of the savage, to the latest improvement of an American reaper. He should bring this accumulated knowledge before the student in the class-room, and he should unite with the professor of agricultural chemistry in scientific experimentation in the field. As assistant, he should have a practical farmer of the highest attainments in his art.

11. *A Professor of the English Language and Literature*, with the teacher of the elementary department for an assistant.

12. *A suitable professor* to take charge of a commercial department, embracing book-keeping, farm accounts, banking business, together with the science of commercial intercourse and domestic trade, as developed in domestic, political and national economy.

13. *A Professor of Modern Languages.*—The modern languages, or more particularly the German and French, should be introduced, in order to enable the student to complete his studies by consulting scientific works in those languages.

14. *A Professor of the Latin and Greek Languages and Literature.*

15. *A Professor of Military Art and Science, and Teacher of Military Tactics.*

16. *A Treasurer, Book-Keeper and Librarian*, who could help teach in the commercial department.

17. *A Janitor and General Superintendent* of the halls, rooms, grounds and furnaces.

SUMMARY.

We then shall have president and professors.....	16
Do.....do....librarian and treasurer.....	1
Do.....do....assistants.....	10
Do.....do....superintendents.....	2
Total.....	29

We thus have an aggregate of twenty-nine professors, assistants and superintendents, for the complete organization of an industrial college; and

after devoting much thought, during the last ten years, to this subject, I think this is the smallest number of men with which a complete system could be efficiently organized, and any person familiar with the duties to which each of these men would be devoted, will see that nearly all of them will have a wider field of labor than is assigned to men in the same departments of those institutions in the country that have established scientific schools. In the scientific departments of the universities of Europe, such duties as have been assigned to a single professor in the above scheme are divided among two, three or four men, and no class of teachers in the world are more devoted to their professions, or labor harder at the duties of them, than do these professors. But as the means at the disposal of the best endowed industrial colleges must for a long time be limited, I have, in the above plan of organization, given the *minimum* number of professors and teachers required, rather than the *maximum* that might be advantageously employed.

COLLEGE BUILDINGS AND OUTBUILDINGS, &C.

Under this head should be discussed the size and form of the college buildings best adapted for the purposes of *instruction and moral government*. As the form best adapted to secure good order and moral discipline, though a question of the highest importance, is not different from that of other colleges, it need not be discussed here. The kind of building best adapted for the purpose of instruction in an industrial college, will differ from that of an ordinary college, in its having much more space devoted to natural history collections, museums and store-rooms for models of tools and machinery, and for scientific apparatus, laboratories, and rooms for scientific investigations, &c. As these will be considered under the next sub-division of our subject, they may be omitted here. It hardly need be remarked here that the size and extent of the college buildings should be such as would afford means of instruction for from 400 to 800 students.

The out-buildings should embrace a barn, wagon house, tool house, blacksmith shop, and all the associated paraphernalia for efficient farm practice, in addition to a special department adapted to experimentation in agricultural field practice and stock feeding.

APPARATUS AND NATURAL HISTORY COLLECTIONS AND MUSEUMS.

These may all be classed under one head, as auxiliaries to study. Like the character of an educational institution, the scientific collections within its walls can only be brought to a high standard of perfection by prolonged years of industrious effort on the part of all those interested in it; most especially cannot these things, adapted to a new course of instruction, be bought in any market in the world; they must be developed out of the ideas and the ideals of the professors of the institution; and the extent and character of

them will depend on the number and the attainments, and will represent the industry of their professors. Even the kind and quality of philosophical apparatus, in an educational institution of the highest order, is more dependent upon the character of the professors who would use it, than the man who makes it, or the science it illustrates; so that the material for the scientific collections, adapted to the necessities of an educational institution, can only be accumulated after years of patient effort. Yet there should be a general plan, conceived at the origin of an industrial institution, according to which the labor of collecting and arranging this material should go on.

Prof. Agassiz, with \$200,000, at Cambridge, commenced a zoological museum, which he estimated would take over \$2,000,000, and many years labor, to complete. Corresponding to all the scientific professors in the list already given, there should be extensive scientific collections.

The professor of mathematics should have geometrical and stereometrical figures, to illustrate all the abstract ideas of mathematics that are capable of representation by lines and surfaces, and not simply a few sections of a cone to which illustration is too often limited.

The professor of chemistry should have complete laboratories for beginners, advanced students, and for special investigations; that students may experiment themselves, rather than look at the professor making experiments. There should also be a complete set of apparatus adapted to illustration in chemical lectures, and a full set of rare and common chemical substances to illustrate the science.

The professor of agricultural chemistry and geology should have extensive collections of all the proximate constituents (as starch, sugar, &c.,) of plants, and means in the laboratory of showing the student how to prepare them. He should have collections of different soils, plants, ashes, manures, and all other materials that are important in agricultural practice. He should have field experiments, involving all questions in vegetable physiology carried out upon the College farm, and in an experimental barn and stable, having experiments going on upon the nutrition of animals, the value of cattle foods, and the manufacture and preservation of manures. He should have a good geological and mineralogical collection, and a museum of economic geology, in connection with the professor of mining and metallurgy. Very good museums of this kind exist in London and Paris, and one is being inaugurated in the scientific department of Yale college.

The professor of metallurgy and mining, and mineralogy, to have complete models of all kinds of smelting furnaces, fluxing furnaces and refining furnaces, and everything else required to give a clear, connected idea of the entire process of taking ores from the earth, and preparing their metals for use. He should also have furnaces, muffles, &c., with which to teach the science of metallurgy, and, with the professor of geology, should have a museum of mineralogy and economic geology and technology.

The professor of veterinary should have such an anatomical museum of the domestic animals as our medical schools have of man, in addition to a collection of all the preparations of veterinary pharmacy, and all the instruments for the operations of veterinary surgery. He should have an anatomical dissecting room, and a laboratory for making anatomical preparations. The finest veterinary collection in the world is at Alfort, near Paris, but even it is susceptible of much improvement for educational purposes.

The museum of natural history may be of almost any size, since there is no limit to the extent of such museums. It should be one, something of the style of the museum of the academy of natural sciences of Philadelphia; except that it should be collected and managed more with reference to systematic teaching and not so much as a repository of individual specimens as that grand collection is. In an adjoining laboratory, students should be taught the art of taxidermy.

The professor of civil engineering should have, in addition to all the apparatus for out-door and in-door work, a complete set of models of different styles of architecture, and specimens of the different kinds of material out of which structures can be built. The schools of mining and engineering in Paris, afford the best examples for imitation in the number and variety of their auxiliaries to the study of these branches.

The professor of natural philosophy and astronomy should have several thousand dollars worth of philosophical apparatus. With the limited resources to which the most wealthy industrial colleges must long be confined, it would not be well to attempt to establish astronomical observatories in connection with them, but they should possess all the apparatus requisite for a much more extended series of illustrations than are given in any American college. There should be, in connection with this collection, a physical laboratory, in which students would learn the art of experimentation in physical science. Such is the case in the highest scientific schools of Europe.

With the professorship of botany, horticulture and entomology there should be as full a collection of dried plants as could be obtained. There should also be a special collection of medicinal plants; another of weeds and useful plants; another of different parts of plants exhibiting the anatomical structure, and embryonic and advanced forms of growth; also, microscopic preparations of plants, and a botanical laboratory, with several microscopes, in which to teach students the habit of microscopic investigation in vegetable anatomy and in entomology. There should also be a botanical garden, with all kinds of plants in it that would grow in the climate, and an economic garden for medicinal and useful plants and weeds; a nursery in which students could learn everything about nursery

practice; and a green house and a collection of different kinds of wood, to illustrate their economical value; and lastly, a museum of insects injurious to vegetation.

The professor of practical agriculture should have a collection of models of all kinds of machines and implements used by agriculturists all over the world. He should, as far as practicable, have full sized machines and implements of each kind, of the *very best* pattern. Such a collection may be seen in the Royal Agricultural College of Hohenheim, in Germany; and it might, in part, be selected from the immense mass of agricultural models in the patent office at Washington. He should have a complete collection of all kinds of grains, root crops and other agricultural productions, as cotton, wool and flax, &c., exhibiting each article in all the different states through which it passes between the points of its original production and ultimate consumption. Such a collection is, in part, to be seen in Paris, and one of a popular character was, a few years ago, being established in London.

Such is a brief outline of the colossal work of bringing together all the auxiliaries to study required in an industrial college. As extensive as the lists of items may seem, there are none that it would not be desirable to have, and the most of them are indispensable to success in an industrial college.

MEANS OF SCIENTIFIC INVESTIGATION.

The characteristic distinction between man as a *savage* and man as an enlightened creature being, as already remarked, the difference in the extent of his industrial operations, it follows that all those agencies, by means of which the field of industrial operations is widened, are of the utmost importance to the human race. But these agencies are all within the domain of science, and hence they operate in proportion to the extent to which scientific investigations are successfully carried out. This proposition is too generally recognized to need demonstration. The spirit of the present age has been moulded to its present form by the investigations of science. Not only our physical comforts, but our *mental* and *moral* peculiarities are in no small degree the result of the discovery of some obscure scientific man, known only to the few who are devoted to his profession. The almost rebellious spirit of impatience with which we look each day for news of events happening the day before, all over our entire continent, and which our forefathers would have waited patiently for a month to learn, is due to the fact that in the last generation an obscure scientific investigator in Sweden discovered that a current of electricity passed around an iron bar rendered it magnetic. And the just indignation with which a modern lady contemplates the necessity of using a tallow candle, on learning that

the village gas works have been allowed to get out of order, is a state of mind due to a desire cultivated by a luxury which originated in the investigation of an obscure English chemist.

The spirit of the age proclaims the necessity of scientific researches in every department of industrial pursuits. Our industrial colleges, to meet the demands of the age, must be experimental institutions, no less than for teaching what is already known in science. It would prolong these remarks too much to dwell upon the character of the experimentation required. Suffice to say that all the foregoing professors should be men who are capable, not only of teaching all that is known in their several departments, but who could extend this knowledge by their own researches, and they should be provided with means for this purpose.

There is scarcely any limit to the amount of means that may be advantageously spent in scientific investigations, in all the experimental sciences. As examples, for illustration, we might cite Mr. Lawes, of England, a shrewd scientific *practical* man, who spends from \$5,000 to \$10,000 annually in agricultural investigations; the Smithsonian Institution at Washington spends a much larger sum for general scientific investigation; and a consideration of the expenditure of Harvard College, appended to this report, will show an expenditure of several thousand dollars for scientific research.

Prizes, Beneficiary Fund for Indigent Students, Free Scholarships, &c —
A most important item in the organization of a college is the establishment of a well chosen set of prizes as the reward of merit. Whatever may be said in favor of impressing upon the student the necessity of study as a duty, or of teaching him to study for the love of study, the fact is undisputed that suitable prizes offer an additional motive for study. The best regulated educational institutions the world over have admitted the necessity of prizes, and they grant them to all grades of students, from the mere child, in the elementary school, to the accomplished scholar of the highest professional departments of the best universities. Nearly all our more prominent American colleges have adopted, more or less, extensive series of prizes. Thus Harvard University gives about fifty prizes for meritorious effort, varying from an appropriate book of moderate value to money prizes of \$10, \$15, \$30, \$40, \$50 to \$100, and sometimes even as high as \$250. Columbia College is even more liberal than this in the distribution of prizes, and Yale is committed to the same policy by a long established custom. This subject is recommended to the board as one of the highest importance, as soon as the resources of the Agricultural College of Pennsylvania will allow of the distribution of a series of prizes commensurate with the extent and character, and object of the institution. So important

do I deem these prizes, that nothing but a consciousness of the fact that the pecuniary resources of the college will not admit of it, prevents me from suggesting a plan for the distribution of them at once.

A Beneficiary Fund.—Several educational institutions in this country and Europe have funds from which they can give or loan money to meritorious students, whose resources are inadequate to meet the expenditures in college. Harvard University thus distributes from \$2,000 to \$3,000 per annum, and the sum at the disposal of the college is much less than the necessities of meritorious students require. As such students, struggling in poverty, realize to a higher degree the necessity for industrious effort than do their more favored companions, they give a tone and general character to the classes they attend, which elevates their standard of excellence to a degree unattainable without the influence of their example. This was most strikingly illustrated, in my own observation, during the year and a half which I was a student in the University of Leipsic, Germany, which had about three hundred students deriving gratuitous aid from the university. It was from these students, much more than from their wealthy associates, that the succeeding great men of the university were derived. The pecuniary ability on the part of colleges thus to assist meritorious students, who would otherwise be obliged to leave college for want of funds, is therefore an inestimable source of power for good, both within the institution and beyond its walls.

PLAN AND COURSE OF INSTRUCTION.

Having given the number and character of the professors, teachers, superintendents and assistants, for the organization of an industrial college, it now remains to point out the qualifications and the course of study of the students of such colleges.

First. Then as regards the qualifications of students, it will not be possible, in justice to those for whom such colleges are intended, to fix upon any definite educational standard of admission, since there are no subordinate schools to prepare students for industrial colleges, as there are academies to prepare them for literary colleges.

I took particular care to converse with all the prominent teachers of industrial education in Europe, during my six years' residence there, and the invariable response to my inquiries was, that they labored under great disadvantages in not being able to properly class many of their students as soon as they entered the industrial college, owing to there being no subordinate schools in which to bring them up to a fixed educational standard.

The same difficulty will be experienced in America, even to a greater extent than in Europe, and it can only be obviated by having elementary departments, in connection with industrial colleges, in which students can be prepared to enter the regular college course.

These elementary departments may be of two kinds; they may be either sufficiently extensive to prepare the students to enter at once upon the purely scientific studies of an industrial college, or they may be devoted simply to finishing up the deficiencies of a good common school education, leaving higher English branches to be taken in connection with the scientific studies of the industrial course.

How much of the course of an industrial college all students should be required to study, and what parts they should be allowed to exercise a choice of studying, is a question of vast importance, though not peculiar to an industrial college.

If the standard of admission of an industrial college does not require familiarity with all the branches of a good English education, its course of instruction should embrace these, and no student should be allowed to graduate without having acquired them.

There are also certain branches of science, embracing the consideration of the physical and physiological laws of life, with the elementary branches of which every student should be familiar.

There are also the great fundamental principles of morality and the Christian religion, which should be taught to all students.

Hence all should be required to study these things, no matter what their taste and inclinations, or their intentions for future activity may be.

But beyond these, the student should be allowed the exercise of choice, within certain limits, as to the studies he would pursue for the purpose of graduating. But this first study, preliminary to the period of his making choice of the final course he would pursue, will make the student familiar with the elementary branches of nearly all the natural and physical sciences, and will give his teacher time to learn his tastes, intentions and abilities, and thus with proper advice, he will be able to make a suitable selection of his final course of studies.

This course should embrace a thorough knowledge of a more limited range of subjects than were included in his elementary course. He should pursue some of these subjects to the utmost bounds of human knowledge, and all of them as near these limits as his time would admit of. At these limits he should be taught the method of original research, and make original scientific investigations upon such subjects as will most directly bear upon the special industrial operations of life to which he expects to be devoted.

Such being the case, there should be, first, a general course of studies to finish up the English education of the student, and to indoctrinate him with the elementary studies of the sciences.

This course should extend through about two years, after which there should be several distinct courses, any one or more of which, or certain combinations of parts of which he should be allowed to select. The number,

extent and efficiency of the courses would be dependent upon the resources of the institution.

The following classification of the students, with the courses proposed, are submitted to the Board, as that best adapted to the organization of an industrial college:

1. *A Course of Agricultural Science and Practice*, which shall embrace a preliminary training in general science, and then a careful study of those sciences that relate to agriculture, together with the details of all parts of agricultural practice, as the raising of crops, stock, &c.

2. *A Course of Engineering and Architecture*, embracing two grades, one of which should require the study of the higher mathematics and mechanics, and the other would require no mathematics higher than the first eight books of Davies' Legendre.

The lower course should embrace, in addition to applied mathematics up to the extent of the geometrical studies, practical lessons in all the details of ordinary civil engineering, mechanical drawing, perspective, photography, and embrace as much knowledge, theoretical and practical, as ordinary engineers have occasion to use in their ordinary duties.

The higher course should, in addition to the lower course, embrace the fluxional calculus, the higher geometry and mechanics, astronomy and navigation. To this course should be added a course of military engineering and gunnery.

3. *An Industrial Course*.—The word industrial is here used in a much more limited signification than elsewhere in this paper, simply to refer to such branches of human industry as are not included in the art and science of agriculture, or of engineering. It relates more particularly to a practical and scientific knowledge of those industrial operations which are the offspring of the natural sciences as developed within the present century—as metallurgy, technological chemistry, pharmacy—giving the student correct knowledge about the intrinsic nature of, and the origin and means of preparing for use, the various articles which contribute to the necessities and luxuries of every day life, thus making him an intelligent manufacturer of such articles as he makes, and an intelligent consumer of such things as are made by others. This course should be varied a little, if the resources of the institution would admit of it, to suit the peculiar necessities of the person taking it. The students would devote themselves to experimental researches into such parts of it as would be of the greatest practical importance to them. Thus, to illustrate with a question of great practical interest to the country, a student who expected to devote himself to the manufacture of sugar from the sorghum *saccharatum*, would apply himself not only to all the methods of analyzing saccharine compounds, but to estimating the amount of sugar in all plants containing it, to the study of the re-

markable transformations in vegetable growth by which sugar is produced and consumed in the growing plant, and to all those purely chemical processes by which sugar is produced, modified or destroyed, and to a close study of those organic substances which must be separated from saccharine juices in order to make the best sugar and molasses. Such a sugar refiner would be an intelligent, scientific man in regard to his profession, and not a mere tradesman, blindly following the empirical rules and recipes he had learned from another without understanding them.

4. *A Purely Practical Course.*—This course should embrace only a popular consideration of science in its relations to industrial operations, such as is embodied in the popular lectures before popular scientific and literary societies, but it should be more extensive and more systematically arranged than these. The admirable series of popular lectures on agricultural subjects, delivered at Yale College a few years ago, will give an idea of the kind of instruction referred to in this course. It is designed for students who are too old, or may not have time, or who are too delicate to stand the close discipline of a more extended course, as also for grown up men, who may not in youth have had the advantages of a scientific education, and who want to get such knowledge of science as will enable them more fully to understand the scientific reading matter and conversation which the progressive spirit of the age is more and more infusing into all the walks of social life. This course would only extend through a year or part of a year, and would merit no degree on being finished.

5. *A Commercial Course.*—This course should not embrace simply the art of book-keeping, (which should be taught during the first two years to all students,) but it should make the student familiar with the laws of trade and commercial intercourse, and with the business habits and peculiarities of nations, and with all the channels and sources through which the wealth of the world is moved about and accumulated. This course could have two grades, in one of which no language but English was studied, and which would extend through one year, and the other of which should embrace the study of at least two modern languages, one of which should be German. This course should extend through two years.

6. *A Literary Department.*—It is not designed that this shall dispute with ordinary colleges the right to teach literary studies, but it should bear some such relation to literary studies as do the professorships of natural sciences in such colleges to scientific studies.

While the study of Latin and Greek would not be urged upon the student as an indispensable part of mental discipline or of practical education, means would be provided for his studying these languages did he desire to do so in connection with his other studies. It is not intended by this remark to deny that linguistic studies, and especially the ancient

classics are not most potent means of mental culture, but simply to doubt the propriety of students commencing the study of Latin and Greek at so advanced an age when they expect to devote their time to industrial pursuits.

The modern languages would also be taught, and in some cases one or two of them incorporated as part of the course in the foregoing plan of studies, and in all cases where the student's time will permit, he should be recommended to study two modern languages, one of which should be German.

In this department opportunities should be afforded for the study of such indispensable branches of an English education as may not have been completed in the first two years of the four year course. They would embrace logic, rhetoric, moral philosophy, political economy and the fundamental principles of human government, including the Constitution of the United States. Associated with this department, and immediately under the charge of its faculty, would be a *primary school* for the purpose of preparing students to enter the college course.

Such being the conclusion at which we have arrived, our plan for an industrial college will be an impracticable ideal if we cannot secure an extensive endowment for its support. For the moment, supposing that it was impossible to do so, our considerations would, at all events, help to explain why it has been that almost all attempts to found industrial colleges without endowment have ended in bankruptcy and failure.

But industrial education is too important to be left, by our enlightened people, without pecuniary means for its support, and hence we are encouraged to sum up the expenses involved in it.

For this purpose the attention of the Board is invited to the following summary of annual income and expenditure of an industrial college:

EXPENDITURE.

16 professors, at \$1,500.	\$24,000 00
10 assistants.	4,000 00
A farm superintendent.	700 00
Janitor and helps.	1,000 00
	————— \$29,700 00
For additions to museums, to scientific apparatus and to library,	5,000 00
For scientific investigation	5,000 00
For repair of buildings.	1,000 00
	—————
Total expenditure.	40,700 00

The annual expenses of such an industrial college as we have been considering are stated at \$40,700 00, independent of taxes and interest or rent of college buildings, grounds and farms, &c.

If any think the sum extravagantly large, they are requested to compare it with the first class literary colleges, about which we have already said so much, or they are invited to examine the details of expenditure.

The price allowed to each professor (\$1,500) is not as high as is paid by first class literary colleges.

And the competition for scientific professorships is not nearly so great as for those of literary colleges.

It will be with great difficulty that men of the attainments required, in the plan of organization we have given, can be engaged at these prices.

Harvard University gives \$3,000 annually to a zoological museum in a literary college. The sum of \$5,000 would not seem extravagant for the entire range of scientific collections in a scientific college.

When a private individual (Mr. Lawes, of Rothamstead, England,) expends \$10,000 annually in agricultural scientific investigation, the sum of \$5,000 for investigations in *all* of the sciences should not be deemed prodigal.

Having thus presented Dr. Pugh's views upon industrial colleges, and indicated the broad foundations underlying the educational structure of the Agricultural College of Pennsylvania, we yet find even this extensive programme too limited to the wants for which the *truly industrial* college should provide, and the position which the Pennsylvania State College should fill. The vast field of the requirements of mechanical industry is hardly developed in Dr. Pugh's report, and this opens a commensurately vast field of technical and practical instruction in the arts and sciences auxiliary to the mechanical profession. The art department proper, with its instructors, galleries of paintings and sculpture, in itself might require an endowment larger than the one at present enjoyed by the college. The co-education of the sexes, whilst offering to the lady students the facilities of their brothers, yet will compel the college to provide facilities for special instruction in the branches of industrial life mainly in the hands of women, and require an enlarged musical department, &c. Landscape gardening, architecture, &c., make claims that cannot be long neglected, and only by adopting more and more university features can the State College offer to the industrial classes of the State a school of scientific preparation for their life's work.

The *present educational status* of the Pennsylvania State College is best placed before the reader by giving subjoined extracts from the last catalogue of the institution, 1874. Since the issue of which, however, im-

portant alterations have been made, tending to utilize still more profitably the available proceeds of the income of the college. Greater changes and additions to the curriculum of study, and the faculty, are in anticipation as soon as an enlightened State patronage shall relieve the college from a financial burden yet resting on it, as detailed in the financial part of this article, and which annually diverts a large proportion of the college's income from the educational work to the slow reduction of a debt incurred in the erection of the necessary buildings and the purchase of the three State experimental farms.

EXTRACTS FROM CATALOGUE OF PENNSYLVANIA STATE COLLEGE, 1874.

Faculty.—This consists of the President, and Professor of Mental and Moral Science; Vice-President, and Professor of English Literature and the Greek language; Professor of Geology, Zoology, and Botany; Professor of Agriculture; Professor of Mathematics and Astronomy; Professor of Latin; Professor of Chemistry and Physics; Professor of Modern Languages and Military Tactics; Preceptress and Professor of Music; Principal of Preparatory Department; Assistant in Preparatory Department; Lecturer on Commercial Law, and Teacher of Phonography.

COURSES OF STUDY.

AGRICULTURAL COURSE.

PREPARATORY.

Orthography,	Map Drawing,
Reading,	History of the United States,
Penmanship,	Arithmetic (completed,)
English Grammar,	Elementary Algebra,
Geography (Political and Mathematical,)	Elementary Latin and Greek (optional,)

FRESHMAN.

Fall Session.

General Agriculture (*Allen*,)
 Higher Algebra,
 Book Keeping,
 Elementary Physics,
 Physical Geography,
 Art of Composition,
 Latin and Greek (optional,)

Spring Session.

General Agriculture (continued,)
 Geometry (four books,)
 Higher Algebra (completed,)
 Art of Composition,
 Elementary Botany,
 Elements of Chemistry,
 Telegraphy (optional,)
 Latin and Greek (optional.)

SOPHOMORE.

Fall Session.

Plant Culture,
Geometry, (completed,)
General Chemistry,
Botany,
German,
French, (optional.)

Spring Session.

Soils,
Horticulture,
Trigonometry,
Surveying,
General Chemistry,
Organic Chemistry, (Lectures,)
German,
French, (optional.)

JUNIOR.

Fall Session.

Farm Machinery,
Rural Laws,
Surveying, (with field practice,)
Political Economy,
Rhetoric,
Human Anatomy and Physiology,
Blow Pipe Analysis.

Spring Session.

Domestic Animals,
Fertilizers,
Elements of Zoology,
English Literature,
History,
Industrial Drawing,
Physics,
Evidences of Christianity,
Constitution of the United States and
of Pennsylvania,
Qualitative Analysis,

SENIOR.

Fall Session.

Rural Architecture,
Veterinary Science,
Original Essays and Discussions on
Agricultural Subjects,
Moral Philosophy,
English Literature,
History,
Physics, (with laboratory practice,)
Principles of Geology,
Civil Engineering,
Economic Zoology,
Qualitative Analysis.

Spring Session.

Landscape Gardening,
Rural Economy,
Original Essays and Discussions on
Agricultural Subjects,
Mental Philosophy,
Logic,
Physics, (with laboratory practice,)
Economic Geology,
Astronomy,
Mineralogy and Crystallography, (lec-
tures,)
Quantitative Analysis.

Instruction in Chemistry, as applied to agriculture, is given at appropriate times throughout the course.

SCIENTIFIC COURSE.

PREPARATORY.

Orthography,	Map Drawing,
Reading,	History of the United States,
Penmanship,	Arithmetic, (completed,)
English Grammar,	Elementary Algebra,
Geography, (Political and Mathematical.)	Elementary Latin and Greek, (optional.)

FRESHMAN.

Fall Session.

General Agriculture, (*Allen*,)
 Higher Algebra,
 Book Keeping,
 Elementary Physics,
 Physical Geography,
 Art of Composition,
 Latin and Greek, (optional.)

Spring Session.

General Agriculture, (continued,)
 Geometry, (four books,)
 Higher Algebra, (completed,)
 Art of Composition,
 Elementary Botany,
 Elements of Chemistry,
 Telegraphy, (optional,)
 Latin and Greek, (optional.)

SOPHOMORE.

Fall Session.

Geometry, (completed,)
 General Chemistry,
 Botany,
 German,
 French, (optional.)

Spring Session.

Trigonometry,
 Surveying,
 General Chemistry,
 Organic Chemistry, (Lectures,)
 German,
 French.

JUNIOR.

Fall Session.

Political Economy,
 Rhetoric,
 Human Anatomy and Physiology,
 Surveying, (with field practice,)
 General Geometry,
 German or French,
 Blow Pipe Analysis.

Spring Session.

Elements of Zoology,
 English Literature,
 Physics,
 History,
 Evidences of Christianity,
 Constitution of the United States and
 of Pennsylvania,
 Qualitative Analysis,
 General Geometry,
 Calculus.

SENIOR.

Fall Session.

Moral Philosophy,
 English Literature,
 History,
 Physics, (with Laboratory Practice,)
 Principles of Geology,
 Civil Engineering,
 Crystallography, (Lectures,)
 Comparative Anatomy & Physiology;
 Qualitative Analysis.

Spring Session.

Mental Philosophy,
 Logic,
 Physics, (with Laboratory Practice,)
 Astronomy,
 Mechanics,
 Mineralogy,
 Technical Chemistry,
 Paleontology,
 Quantitative Analysis.

CLASSICAL COURSE.

PREPARATORY.

Orthography,
 Reading,
 Penmanship,
 English Grammar, [ical,)
 Geography, (Political and Mathemat-
 Map Drawing,

History of the United States,
 Arithmetic (completed,)
 Elementary Algebra,
 Latin Grammar and Reader,
 Cæsar and Latin Composition,
 Greek Grammar and Reader.

FRESHMAN.

Fall Session.

General Agriculture,
 Higher Algebra, *
 Book Keeping,
 Virgil's Æneid,
 Xenophon's Anabasis,
 Greek Composition.

Spring Session.

General Agriculture,
 Geometry, (four books,)
 Higher Algebra, (completed,)
 Cicero's Orations,
 Latin Composition,
 Herodotus,
 Greek Composition.

SOPHOMORE.

Fall Session.

Geometry, (completed,)
 General Chemistry,
 Botany,
 Horace's Odes,
 Plato's Apology,
 Greek Composition.

Spring Session.

Trigonometry,
 Surveying,
 General Chemistry,
 Livy,
 Homer's Iliad.

JUNIOR.

Fall Session.

Political Economy,
 Rhetoric,
 Human Anatomy and Physiology,
 Surveying, (with field practice,)
 Horace's Epistles and Satires,
 Thucydides,
 General Geometry, (optional.)

Spring Session.

Elements of Zoology,
 English Literature,
 Physics,
 History,
 Evidences of Christianity,
 Constitution of the United States and
 of Pennsylvania,
 Tacitus' Histories,
 Œdipus Rex,
 General Geometry, (optional,)
 Calculus, (optional.)

SENIOR.

Fall Session.

Moral Philosophy,
 English Literature,
 History,
 Physics, (with laboratory practice,)
 Principles of Geology,
 Civil Engineering, (optional,)
 Cicero's De Officiis,
 Demosthenes De Corona,
 Hebrew, (optional.)

Spring Session.

Mental Philosophy,
 Logic,
 Physics, (with laboratory practice,)
 Astronomy,
 Mechanics, (optional,)
 History of Greek and Roman Literature,
 Hebrew, (optional.)

MILITARY TACTICS.

In addition to the drill in infantry tactics during the entire course, the classes will receive the following instruction :

Sophomores.—Upton's Infantry Tactics—two recitations each week.

Juniors.—Weekly lectures during the fall session on artillery tactics and the use of artillery. During part of the spring session, practice in the field with the pieces. Bayonet exercise.

Seniors.—Weekly lectures during half of the spring session on cavalry tactics and the use of cavalry as a branch of the U. S. service. Sabre exercise.

The military instruction given is in accordance with the systems of tactics recently adopted by the War Department, and now in use in the United States army.

COMPOSITION AND DECLAMATION.

During both sessions of the college year composition and declamation are required of students in all the courses of study.

DESCRIPTION OF THE INSTITUTION

THE COLLEGE.

The College Building.—This is a plain, substantial structure of limestone, seated on a pleasant rise of ground, and is 240 feet in length, 80 feet in average breadth, and five full stories in height, exclusive of the basement; with ample lodging rooms, chapel, library, society halls, laboratories, cabinets and refectory for 330 students. The whole is well heated and well supplied with water. A large campus for exercise and drill, and extensive pleasure grounds adjoin the building.

Other Buildings.—There is also a president's house, with grounds attached, one for the vice president, and one for the superintendent of the farm; the other professors occupy sets of apartments in the main building.

THE LAND.

Its Position.—The college property consists of a tract of 400 acres, of which 100 have been set off as a model and experimental farm, and worked separate from the main college farm of 300 acres, though under the supervision of the professor of agriculture. The tract is in College township, Centre county, about 12 miles south of Bellefonte, and nearly equi-distant from the opposite extremes of the State. It is near the middle, from north to south, of the broad rolling valley formed by the junction of Penn and Nittany valleys, which unite at the end of Nittany mountain, about 3 miles east of the college, with Tussey mountain on the south, and Muncy mountain on the north. The landscape is broad, varied and beautiful, the climate healthful, and the surrounding population intelligent, industrious and moral. The sale of intoxicating drinks within two miles of the college is prohibited by law.

The College Farm is now worked in five divisions or fields, of from 30 to 40 acres each, so as to insure a regular succession of crops, the remainder of the tract being occupied by the college grounds, garden, orchard and two pieces of woodland. The surface is moderately rolling, without any broken land or swamps; the soil is limestone, with a large admixture of flint, and admirably adapted to the production of wheat, Indian corn, oats, barley and the various kinds of grasses. It responds freely to the use of lime, of which large dressings are now applied, and of plaster of Paris,

and the various artificial fertilizers. All the bread and vegetables, and most of the meat consumed by the students and employees are produced on the place, and its productiveness is increasing. The improved stock now consists of imported Alderney and Holstein bulls, (the former of which is a herd-book animal,) one pure and several grade Durham cows, and of several breeding swine of the Chester county breed.

The Farm Buildings are a large well arranged overshot barn, with double threshing floor, threshing house, corn cribs, and root house attached, and stabling for mules and other stock below, an extensive hog pen, a tool house, and a plough house. A wash house and a slaughter house are also on the premises and conveniently placed, and a well equipped carpenter shop.

The Garden contains about six acres of prime land, and having all been sub-soiled or trenched, and well limed and manured, it is now highly productive. It has a stock of small fruit, such as currants, gooseberries, strawberries, &c.

The apple orchard of twelve acres, is just coming into good bearing. Cherries are in great variety and abundance. A vineyard has recently been set out.

FACILITIES FOR INSTRUCTION AND IMPROVEMENT.

The Chapel is large enough to seat about four hundred persons, and is comfortably furnished. Here, at noon, the students meet for reading of Scriptures, singing and prayer by the members of the faculty in turn. At 9 A. M. every Sunday, the students and professors meet as a Bible class; at 3 P. M. there are regular services by clergymen of the vicinity, or of the faculty acting as chaplains, and in the evening there is a prayer meeting. The chapel is also used for general lectures and rhetorical exercises.

The Library belonging to the college contains about fifteen hundred volumes, embracing scientific and technical works, memoirs, scientific essays, agricultural and educational works, &c., in English, French and German, forming the nucleus of a fine scientific library. Certain scientific periodicals, purchased by the college for the use of the different departments of instruction, are also added to the library from time to time as they accumulate.

Chemical Laboratories.—The importance of chemistry in its application to agriculture and the mechanic arts, and its value as an element of liberal education, claim for it a prominent place in each of the courses. The college offers special facilities for this study; the stock of apparatus is large and complete. Illustrations in teaching are drawn, as far as possible, from familiar sources, and all instruction is imparted in such practical form as to make it applicable to the daily wants of life.

In addition to study by text-book and lecture in the class-room, students are, during a considerable portion of their course, employed from four to six hours per week in the chemical laboratory, in applying in practice what they have learned in theory. Each has charge of a quantity of apparatus and chemicals which he uses under the eye of a teacher in studying the effect of different agents upon one another, and in acquiring a knowledge of chemical analysis. This study is made progressive and carried on through successive classes after the first term of the sophomore year, by which time he will have mastered the elements of chemistry.

On entering the laboratory the student first studies the simplest principles of analysis, acquires the use of the blow-pipe, &c., and learns to handle apparatus. In the higher classes he makes complete analyses of the different materials presented to him, learning to determine first the *quality* of the ingredients, afterwards their respective *quantities*. In these exercises, each student is given as far as practicable, a course of work most applicable to his intended pursuit in life.

Laboratories, with all the necessary appliances, are provided for students.

Apparatus and chemicals used in the laboratory may be purchased at the college. The cost will depend in a great measure upon the care and skill of the student. Ordinarily it need not exceed \$15 for a junior, and \$20 for a senior. Apparatus which has been carefully used may be returned, subject to a discount of twenty-five per cent. on its cost, and the *actual* expense thus be much reduced.

Unusual facilities are afforded to those who desire to make the study of chemical analysis a speciality. Druggists, medical students and others desiring a partial course in this branch may enter at any time, and will receive on leaving the college, a certificate in testimony of the work they have accomplished. Such students will be subject to the rules elsewhere stated in regard to special students.

All chemical work in the laboratory is accompanied by lectures, explaining the theory of analysis, reactions involved, &c., such lectures being independent of the preliminary course in elementary chemistry.

To meet the wants of technical students, a series of lectures in technical chemistry has been introduced into the scientific course. Students in this course will make extended excursions to manufactories and technical works where actual processes may be studied in detail.

Mineralogy and Crystallography.—Instruction in mineralogy will be imparted by lectures and by practice in the laboratory. While the study will be chiefly that of the chemical properties of minerals, full attention will be paid to crystallographic and other physical properties which may aid in their identification.

Crystallography is taught first as a pure theory, in the study of perfect forms, before the student is led to examine the perplexing modifications presented by nature.

Illustration in the study of these sciences is furnished by a fine mineralogical cabinet and collection of crystal models.

Physics.—The principles of the important science of physics, embracing the subjects of forces, general properties of matter, light, heat, sound, electricity, &c., will be thoroughly imparted. A collection of apparatus for experimental illustration of these subjects is in possession of the College. This collection has been materially increased during the past year. Students in physics are employed for two hours per week in laboratory work connected with this study. They are here taught the use of the galvanic battery, specific gravity apparatus, photographic camera, spectro-scope, &c.

Telegraphy.—Through the liberality of a patron, a complete suit of Tiltonson's best telegraphic apparatus, consisting of register, relay, sounders, keys, batteries, &c., has recently been purchased for the College.

In this important branch of scientific industry, instruction will be given in not only the ordinary operations of transmitting and receiving messages, but also in the principles of magnetism and electricity, as applied to the telegraph, the care of instruments and management of the various kinds of batteries. In the spring session a charge of \$6 00, and in the fall session of \$4 00, will be made for materials used.

Agriculture.—This study is designed to give to the student who pursues it, a comprehensive and thorough knowledge of agricultural principles and methods. A farm of 300 acres is used to demonstrate the principles taught in the class room, affording students an opportunity to put in practice their theoretical knowledge of husbandry, and to study the processes from which the best results are obtained. Improved implements are used and their adaptation to the purpose of their construction is explained. Cattle of various improved breeds are kept, and their characteristics are rendered familiar to the student from actual observation. Soiling of cattle is practiced, and the various forage plants suitable for this purpose are cultivated, their values compared and accounts kept, that the economy of the system may be accurately ascertained. The system of mixed husbandry is the one adopted, the intention being to illustrate every method in use in agriculture, and afford the student the opportunity of becoming acquainted with all the details of farming; and, since most men, irrespective of profession, look forward to the time when they will be able to enjoy rural life by cultivating a portion of the earth, students in the Freshman classes of all the courses are required to study agriculture.

Botany.—The botanical course extends over one year. Students, after having acquired a sufficient knowledge of structural botany, are required to make practical application of it in studying the plants of the district.

At least four hours a week during the entire year will be given to analysis of plants. To such students as have completed this course of study, lectures are delivered on economic botany. In these lectures the weeds and useful plants of cultivation, the native flora and the plants of commerce, with their natural history and modes of preparation and adulteration, and their general relation to the wants of man, are treated of.

Students who have shown an aptitude for the work, and who wish to prosecute this study further, have (under certain restrictions) access to the library and herbarium of the professor of botany, and also have the benefit of his personal supervision in their studies.

Diagrams and microscopes are used to illustrate the teachings of the class room. Throughout, the aim is to give a thorough practical turn to the studies of this department.

The college herbarium contains several thousand species of plants. Most of them are from North America or Europe. Hence, the species with which the farmer is most likely to have to deal are represented in the collection. It is available for instruction in the institution.

The Geological Collection made by Prof. Rogers, during the geological survey of the State, is in possession of the college, and will afford a rare opportunity of becoming acquainted with the geology of Pennsylvania. In addition to this there is quite an extensive collection of typical European rocks belonging to the college.

Frequent excursions are made with the classes. The neighboring valleys and mountains afford rare opportunities for the study of botany, physical geography, paleontology and geology. The great synclinal and anticlinal Paleozoic waves east of the Alleghenies are here shown in every variety of position and angle of inclination, while good outcrops are to be seen of nearly all the sub-divisions of Paleozoic rock, from the lowest to the coal measures.

Human Anatomy and Physiology.—Instruction in this study is rendered clear by the use of the articulated skeleton, dry preparations and charts, and by the occasional dissections of the more important organs of animals. From these facilities, with constant access to the laboratory and the lectures, and directions of their medical studies by the proper professors, young men intended for the medical profession enjoy advantages met with in few private offices, while at the same time they are advancing their general education.

Zoology and Comparative Anatomy.—Students who have completed the course in human anatomy and physiology, enter next upon the comparative

anatomy and physiology of the brute creation, and in this way become acquainted with the structure and qualities of those animals which are of immediate service to man, and of those which are obnoxious to the household and to the cultivator of the soil.

Particular emphasis is laid upon the habits of insects injurious to vegetation, and of those creatures which affect the health of domestic stock.

Surveying and Engineering.—The college is in possession of a transit, compass and chains, for practical instruction, and other instruments will be added to meet the wants of the student.

He also enjoys the great advantage of studying, under the guidance of his instructor, the mechanical principles involved in the structure and operations of the following works, which are located in the vicinity of the college, viz: The Oak Hall woolen factory, Bellefonte water works, gas works, glass works, steam planing mills, steam flouring mills, paper mills, car works, smelting furnaces, forges, foundries, and steel wire works, the Snow Shoe coal mines, and numerous other works, which are in successful operation in the thriving industrial region in the midst of which the college is situated.

Language and Literature.—In this department, as well as in the natural sciences, the course of instruction aims to combine theory and practice—to teach the science with and through the art. Hence, in the study of a language, ancient or modern, composition is used as an important help to the student, who is required, not only to learn the rules of etymology and syntax, but also to apply them in the construction of sentences, and is also taught to examine the relations of languages, that his acquaintance with one may facilitate his acquisition of others. By employing such aids, the classical student may, it is believed, obtain as thorough a knowledge of Latin and Greek as is imparted at colleges which are exclusively literary, and yet may find time to avail himself largely of the special advantages for scientific study, which the institution affords. An elementary knowledge of French and German is recommended to all—even apart from the literary value of such studies—on account of the rich stores of information which those languages offer to the professional man and the student of science.

Since the ability to understand and to use aright his mother tongue, contributes to the usefulness as well as to the enjoyment of every man, whatever may be his pursuits, it has been thought proper to require of all students the writing of essays, and the careful study of our own language and its literature. The former exercise is so conducted, that while the student is made familiar with our present forms and idioms, he is also prepared for reading understandingly our early writers, such as Chaucer and Spenser; the study of the latter is chiefly through the critical reading of our best English writers, from Chaucer to Shakspeare, the main object being to in-

introduce the student to the literature itself rather than to make him acquainted with its history.

Students' Societies.—There are two literary societies, named, respectively, the Cresson and the Washington. Each has a commodious hall, handsomely fitted up, a library of standard and miscellaneous works, and a reading room. Besides these, there is a Christian Association. No secret fraternities are permitted in the institution.

Armory.—This is a large room, with proper racks, &c., and supplied with small arms and accoutrements, cavalry sabres, belts, &c., and foils and their appendages for fencing. The college has also a number of tents, and two six-pounder brass field pieces, with caissons, &c., complete.

SPECIAL PREPARATION OF STUDENTS.

Intended Profession.—After a sufficient course of general preparation in study, the studies and employments of each student are especially directed either to agriculture, general science, mechanics or higher literature, as may be desired.

Irregular Students.—Students whose parents or guardians desire them to pursue particular branches without graduating, are permitted to do so, on the payment of the same charges as the class to which they respectively belong, subject to the same rules as to labor. To such, upon their leaving the college, certificates will be given, setting forth the special studies pursued by them, and their proficiency in them.

MILITARY INSTRUCTION.

The male students are organized as military companies, under the charge of cadet officers. There are daily inspections of rooms by the company officers, inspection of arms and accoutrements once a week and drill four times a week.

Written reports are made to the military instructor, as commandant, daily and weekly, by the company and battalion officers.

Students who have conscientious scruples against bearing arms, or whose parents or guardians request in writing that they may be exempted, for conscience' sake, will not be required to drill; but they, and others who may be exempted for reasons satisfactory to the president, will work three hours each week, at such times as may be assigned to them.

UNIFORM.

Each male student, of the height of five feet or over, is required to provide himself with a uniform, consisting of coat and pantaloons of cadet gray, and a black hat; the whole to be made and trimmed according to a pattern in the college.

In order to secure perfect uniformity and cheapness, it is necessary that all the uniforms shall be furnished by one establishment.

LABOR.

The Labor Rule at present requires an average of six hours' labor each week, by each student in the Preparatory, Freshman and Sophomore classes, which is rendered in details of three hours, either in the forenoon or afternoon, on alternate days, except Saturdays, when both labor and recitations are suspended. The work is on the farm or in the garden, barn, workshop or building, as the case may be, under proper superintendence. Students in the Junior and Senior classes do an amount of work equal to the above, by practice in the laboratories, surveying, &c.

THE CENTRAL EXPERIMENTAL FARM.

Its Objects.—This is one of three farms, the others being in Chester and Indiana counties, directed by law to be established and conducted as model farms, equipped with the most convenient kind of buildings and apparatus, and farmed in the best manner by hired labor, to serve as examples in successful practical agriculture; and also as experimental farms, to test by experiments in sufficient series, and to decide by results, those numerous doubtful questions, as to modes of culture, relative value of manures, kinds of seeds, succession of crops, qualities of live stock, &c., which perplex the farmer, and to make known these results, when sufficiently verified, to the public.

The greater portion of each tract is devoted to the general model farm, and the remainder to the trial of experiments.

Advantages to the Student.—In both respects they will be highly useful and instructive to the inquiring farmer; and the one near this institution holds out much promise of benefit to the agricultural student. By attention to its processes and its crops, which are in great variety as to culture, manure, seeds and treatment on the experimental plots, and by consulting the periodical records of each, which are regularly made from weight and measure, and other data, as to soil, weather, &c., and open to the inspection of all, a certainty of knowledge, based on a series of similar experiments for a succession of years, may be arrived at, which by no other means, and by no private agency is attainable. Students are furnished with plans and descriptions of these experimental plots, to enable them at all times to know the crop and treatment of each division, without the necessity of application to the superintendent for that purpose.

The Mechanical Department is in charge of a skillful and experienced master mechanic, with proper blacksmith and carpenter tools and other appliances, for the repairs of the building and fixtures, and of the farming implements, and for the manufacture of such new articles for use as may be constructed on the place. In this work he is to be assisted, when necessary and desirable for the purpose of instruction, by students during their regular work hours.

Pecuniary Compensation for Work.—A limited number of students, desirous of remaining at the college during vacations, are retained to assist in the work of the farm, garden, &c., and paid a reasonable compensation, with board, lodging and washing, and the use of the library, &c. During term time, such students as desire employment, and without interfering with their studies, can perform labor on the farm, in the building, the shops or elsewhere, in addition to that which may be regularly required of them, will be employed at fair wages, upon all occasions when extra help may be needed.

Agricultural Society Scholarship.—The Agricultural Society of Centre county, has generously arranged to pay the regular college bills of two students from that county; and similar organizations in several other counties, and the State society are contemplating somewhat similar action. Students seeking the benefits of the scholarship of Centre county, are required to be under sixteen years of age, and to excel in a competitive examination in the studies which are preparatory to admission to the Freshman class. They will be supported during four years, if their deportment and devotion to study shall justify the continuance of the favor.

PRIZES.

The following prizes will be awarded at the close of the present collegiate year :

The Arithmetic prize, the gift of Prof. Allen, to that student in the preparatory course who shall excel in mental and written arithmetic.

The M'Allister prize, the gift of Gen. James A. Beaver to that member of the Freshman class who shall excel in the studies preparatory to admission to college.

The Mathematical prize, to that member of the Freshman class who shall excel in algebra.

The Ladies' prize, to that female student who shall excel in household duties.

The Agricultural prize, to that member of the Senior class who shall excel in the studies of the agricultural course.

The Kaine prize, the gift of Hon. D. Kaine, to that member of the Junior class who shall excel in the composition and delivery of an English oration.

The President's prize, to that student who shall excel in deportment.

The Orvis prize, the gift of the Hon. John H. Orvis, to the student who shall excel in the mathematical studies of the Sophomore year.

The Montgomery County prize to the Senior excelling in physics.

ADMISSION.

Students will be received at any time, and admitted to the classes they may be qualified to enter; but entrance on the first day of the session will

greatly benefit the student. Students from other States are received on the same terms, and to equal privileges, with those from Pennsylvania.

CHARGES.

No charge whatever is made for tuition, except in music.

Each student, whether from a distance or a resident in the neighborhood, is required to pay \$20 a year for the fuel, lights and care of the recitation and other public rooms, viz: \$8 for the Fall session, and \$12 for the Spring. This is the only charge made to pupils who do not room in the college. The additional charges to those who room in the college building are as follows:

FALL SESSION.

Rent for each room, without regard to the number of persons who use it.....	\$5 00
Fuel for one stove.....	10 00
Use of furniture.....	2 00

SPRING SESSION.

Rent for each room.....	\$7 00
Fuel for one stove.....	14 00
Use of furniture.....	3 00

The furniture provided by the college for students who room in the building consists of a stove, bedstead, mattress, bolster, table, washstand and chairs. The occupants of each room, therefore, will provide their own carpet, mirror, wash-bowl and pitcher, pail, broom, lamp and oil-can; and each person should bring with him two blankets, three single sheets, two bolster-cases, one pillow, three pillow-cases, a comfortable, a spread, and several towels. All articles should be marked with the full name of the owner.

Boarding can be obtained from the lessee of the college boarding hall, and from families in the neighborhood, at various rates, none of which exceed \$3 50 per week. Boarding clubs have been organized, in which the cost of boarding has been reduced to \$2 50, and less, per week. Every encouragement will be given to students who, by boarding themselves, desire to thus diminish their expenses. Students are forbidden to board or room on the premises of persons who are not approved by the Faculty.

Washing is at the rate of fifty cents per dozen.

Music.—Instruction on the piano or organ will be given at the rate of \$10 00 for twenty lessons, and \$3 00 per quarter for use of instruments in practising.

All college charges are payable in advance, at the beginning of the respective sessions.

Damages.—Persons causing special damages will be required to pay for the same.

MISCELLANEOUS COAL REPORTS.

The following tables and statements were received too late for classification. For some of them we are indebted to the publisher of the "Coal Trade Journal," while others were received from official sources.

Anthracite coal is found in an area of about 470 square miles, in Luzerne, Carbon, Schuylkill, Northumberland, Dauphin and Columbia counties, in the State of Pennsylvania.

To show the growth of the business, we append the following schedule of the production:

Year.	Tons.	Year.	Tons.
1820	365	From 1860 to 1870	114,319,161
From 1820 to 1830	533,194	1871	15,198,063
From 1830 to 1840	5,940,270	1872	18,929,263
From 1840 to 1850	21,893,153	1873	19,585,178
From 1850 to 1860	63,981,897	1874	19,785,008

The census report of 1870 enumerated 327 collieries; 829 engines, of 48,709 horse-power; 43,938 men, 9,078 boys were employed; \$50,922,285 of capital was stated to be invested, and \$22,980,293 was paid out for wages.

There are three great divisions, which are named from their locations—the first or Southern, the second or Middle, and the third or Northern coal fields.

The Southern coal field lies principally in Schuylkill county, and hence it is often called the Schuylkill region.

The Mahanoy (often included in the Schuylkill) and Lehigh regions constitute the Middle coal field.

The Northern coal field is in Luzerne county, and embraces what is known as the Wyoming, Lackawanna, Scranton and Wilkesbarre regions.

In regard to the probable exhaustion of these fields, Prof. Sheaffer gives the following figures: Average total thickness of coal in the Southern coal field, 75 feet; Middle and Northern fields, 45 feet; total cubic quantity, 26,361,076,000 tons. Deduct half for waste in mining, preparation and faults, then we still have 13,180,538,000 tons. The amount mined from 1820 to 1870 (50 years) was 206,666,325 tons. Thus we have yet in store 12,973,878,675, which, at 25,000,600 tons per annum, will supply us for 520 years.

Besides the production reported above, it is estimated that some 3,000,000 tons are annually consumed in the coal regions by the engines, workmen and local enterprise, the returns for which are not furnished by the colliery proprietors.

COAL PRODUCTION OF THE GLOBE.

COMPILED BY JAMES MACFARLANE.

The following will show the coal area of the principal coal producing countries, together with the production for the years 1870, 1871, 1872 and 1873.

	Sq. miles of coal.	1870.	1871.	1872.	1873.
Great Britain.....	11,900	110,431,192	117,352,028	123,497,316	127,016,747
United States	192,000	32,863,690	41,000,000	45,000,000	50,512,000
Germany.....	1,800	23,316,238	37,852,463	42,324,466	45,335,741
France.....	2,086	6,550,000	13,400,000	15,899,005	17,500,000
Belgium.....	900	13,697,118	13,733,176	15,658,948	17,000,000
Austria.....	1,800	6,443,575	9,891,350	10,389,952	11,000,000
Russia.....	30,000	696,209	829,722	1,097,832	1,200,000
Spain.....	3,501	414,482	500,000	570,000	570,000
Portugal.....				18,000	18,000
Nova Scotia.....	18,000	625,769	673,242	880,950	1,051,567
Australia.....		800,000	790,143	942,510	1,000,000
India.....	2,004	500,000	500,000	500,000	500,000
*Other countries.....		1,000,000	1,000,000	1,000,000	1,000,000
		197,338,273	236,522,124	257,778,979	273,704,055

AVERAGE CONTENTS OF COAL CARS.

The Central Railroad (of N. J.) scales at Penobscot, Luzerne county, Pennsylvania, give the average weight of coal of each kind, and measurement of contents, as below :

Lump.....	32.2 cubic feet per ton of 2,240 pounds.
Broken.....	33.9 cubic feet per ton of 2,240 pounds.
Egg.....	34.5 cubic feet per ton of 2,240 pounds.
Stove.....	34.8 cubic feet per ton of 2,240 pounds.
Chestnut.....	35.7 cubic feet per ton of 2,240 pounds.
Pea.....	36.7 cubic feet per ton of 2,240 pounds.

* Italy, New Zealand, Chili, China, Japan, South America and all other countries producing lignite.

FIRST USE OF COAL AS FUEL.

The Chinese, forerunners in most discoveries, knew its value centuries ago in their own country the Romans are known to have used it, and from the twelfth century to the present day there has been an ever increasing trade in that most important of minerals. As long ago as in Edward the Sixth's reign (1552,) coal was sent to France.

VARIETIES OF COAL.

Anthracite contains eighty-five to ninety-three per cent. of carbon, rarely more than seven and a-half per cent. of volatile matter; in the extreme western portion of the basin in Pennsylvania a Semi-Anthracite, containing as much as ten or fifteen per cent. of volatile matter has been found.

Bituminous.—This is a somewhat deceptive term; it does not mean that any bitumen or mineral pitch, soluble in ether, is contained in it, but that the gases (oxygen, hydrogen and nitrogen) enter more largely into its composition than in Anthracite, and give it a more flaming character in burning.

Semi-Bituminous is that particular kind which, while it yields coke and combustible gases, usually contains eleven or twelve and never more than eighteen per cent. of volatile combustible matter, and not less than seventy and never more than eighty-four per cent. of carbon.

LEHIGH VALLEY RAILROAD COMPANY.

STATEMENT showing the coal tonnage of the Lehigh Valley Railroad Company, from the commencement of business.

YEARS.	Coal tonnage east of Mauch Chunk.	Total coal tonnage.	Miles of main road.
1855 (three months)	8,482	8,482	46
1856	165,740	165,740	46
1857	418,235	418,235	46
1858	471,029	471,029	46
1859	577,651	577,651	46
1860	730,641	730,641	46
1861	743,671	743,671	46
1862	882,573	882,573	46
1863	1,195,154	1,195,154	46
1864	1,295,419	1,466,794	87
1865	1,402,276	1,687,462	87
1866	1,730,474	2,037,714	127
1867	1,948,385	2,080,156	158
1868	2,225,630	2,603,102	189
1869	2,015,296	2,310,170	189
1870	2,810,020	3,608,586	194
1871	2,210,272	2,889,074	202
1872	3,009,395	3,850,118	202
1873	3,139,023	4,144,339	202
1874	3,016,636	4,150,659	202

The following are the details of the business for the year ending November 30, 1874 :

ANTHRACITE RECEIVED.

	Tons. Cwt.
From Wyoming region	1,046,967.05
During the previous year.....	881,628.13
From Hazleton	1,986,479.06
During the previous year	2,123,097.17
From Upper Lehigh	4,733.05
During the previous year	2,974.15
From Beaver Meadow	631,630.14
During the previous year.....	629,570.18
From Mahanoy	475,604.05
During the previous year.....	503,802.02
From Mauch Chunk	5,244.15
During the previous year.....	3,265.13
Total for 1874.....	4,150,659.10
During the previous year.....	4,144,339.18

BITUMINOUS RECEIVED.

From Pennsylvania and New York railroad.....	4,824.06
From all other sources	21,797.19
Total	26,622.05
Grand total (anthracite and bituminous).....	4,177,281.15

The anthracite carried was distributed as follows :

	Tons. Cwt.
Local, east of Mauch Chunk.....	72,321.18
Forwarded east, for use of Lehigh Valley railroad.....	50,079.07
Furnaces and manufacturing companies.....	530,822.11
Berks County railroad	3,624.06
Catasauqua and Foglesville railroad.....	9,551.00
East Pennsylvania railroad	25,000.14
North Pennsylvania railroad.....	293,445.14
Port Delaware.....	165,277.07
Eastern and Amboy railroad.....	.....
Morris and Essex railroad.....	401,403.11
Belvidere and Delaware railroad	1,106,476.10
New Jersey Central railroad.....	358,633.12
At and above Mauch Chunk, for use of Lehigh Valley R. R.,	66,019.07
Pennsylvania and New York railroad.....	569,718.06

	Tons.	Cwt.
Northern Central railroad	15,164.	14
Danville, Hazleton and Wilkesbarre railroad.....	53,553.	13
Lehigh and Susquehanna railroad, at Packerton, for R. R.,	13,064.	09
Individuals at Mauch Chunk.....	2,233.	17
Individuals above Mauch Chunk.....	15,472.	13
Lehigh and Susquehanna railroad, at Penn Haven, for R. R.,	2,845.	19
Lehigh and Susquehanna railroad, at Penn Haven, for canal,	225,650.	00
Lehigh canal, Mauch Chunk.....	95,664.	12
Catawissa railroad	2,963.	08
Lackawanna and Bloomsburg railroad, at Lackawanna Junc.,	70,782.	02
Philadelphia and Reading railroad	890.	00
Total.....	4,150,659.	10

SHIPMENTS AT PORT RICHMOND.

The business at Port Richmond for the year ending November 30, 1874, was as follows:

RECEIPTS.		SHIPMENTS.	
	Tons. Cwt.		Tons. Cwt.
Anthracite	2,159,402.17	Anthracite	2,008,495.16
Bituminous	43,002.12	Bituminous	42,631.18
Total	2,202,425.09	Total	2,051,127.14

DESTINATION.

	Tons. Cwt.		Tons. Cwt.
Nova Scotia.....	22,076.00	Brought forward.....	1,863,274.09
Canada.....	829.00	District of Columbia	69,500.10
New Brunswick.....	12,461.10	Virginia.....	68,858.10
Maine.....	104,212.00	North Carolina.....	4,898.10
New Hampshire	52,214.10	South Carolina.....	20,747.05
Vermont.....	267.00	Georgia.....	11,872.00
Massachusetts.....	952,938.10	Alabama.....	1,442.00
Rhode Island	105,650.00	Louisiana.....	503.00
Connecticut.....	50,994.00	Florida.....	15,547.00
New York.....	376,904.15	Texas.....	1,562.00
New Jersey.....	82,013.14	West Indies.....	10,032.00
Pennsylvania.....	75,067.00	Central America.....	2,422.00
Delaware.....	7,512.10	South America.....	119 10
Maryland.....	29,134.00	Mexico.....	351.00
Carried forward.....	1,863,274.09	Total.....	2,051,127.14

PHILADELPHIA AND READING RAILROAD COMPANY.

The following table will show the progress in the number of tons of 2,240 pounds carried by this company, and the number of miles of main line in operation, from 1850 to 1874, inclusive :

DATE.	Tons.	Miles.	DATE.	Tons.	Miles.
1850.....	1,351,502	95	1871.....	6,002,573	260
1855.....	2,213,292	98	1872.....	6,185,434	323
1860.....	1,946,195	152	1873.....	6,546,553	323
1865.....	3,090,814	152	1874.....	6,348,812	323
1870.....	4,633,504	152			

Details for the year ending November 30, 1874, are as follows :

	Tons.	Cwt.
Passing over main line.....	4,005,690.	01
For shipment by Schuylkill canal.....	720,052.	05
Shipped westward.....	249,932.	19
Shipped west or south.....	102,110.	02
Consumed on laterals.....	175,399.	09
Lehigh and Wyoming coal.....	490,572.	09
Bituminous.....	257,243.	08

Total all kinds paying freight..... 6,001,000.13

Coal for company's use :

Anthracite.....	336,132.	06
Bituminous.....	11,679.	08

Total..... 6,348,812 07

The coal was received from the lateral roads as follows :

	Tons.	Cwt.
At Port Carbon.....	1,753,302.	04
At Mount Carbon.....	160,177.	00
At Schuylkill Haven.....	1,330,892.	07
At Pine Grove.....	330,602.	02
At Tamaqua.....	638,649.	15
At Harrisburg and Dauphin.....	207,362.	19
At Allentown and Alburtis.....	24,736.	12
At Oreland and Willow street.....	55,453.	11
At Summit and Rupert.....	410,382.	06
Bituminous, at Harrisburg.....	268,922.	16
Coal for canal.....	720,052.	05
Shipped west, via N. C., etc.....	270,800.	11
Consumed on laterals.....	175,399.	09

Total business of the company..... 6,348,812.07

The coal was distributed as follows :

YEARS.	Line.	Philadelphia.	Port Richmond.
1863	548,755	388,352	2,128,154
1864	634,074	373,070	2,058,428
1865	659,376	380,283	2,051,202
1866	836,598	475,189	2,402,897
1867	935,694	386,933	2,121,189
1868	597,903	697,277	2,113,581
1869	923,504	888,633	2,362,972
1870	1,074,400	785,535	1,893,055
1871	1,128,227	923,539	2,311,393
1872	1,357,208	998,212	2,223,137
1873	1,670,188	1,075,255	2,266,892
1874	1,715,052	1,064,304	2,076,259

LEHIGH COAL AND NAVIGATION COMPANY.

TABLE SHOWING THE COAL PRODUCTION AND SHIPMENTS OF THIS COMPANY

YEAR.	Tons.	YEAR.	Tons.
1820	365	1847	351,675
1821	1,073	1848	360,619
1822	2,440	1849	393,807
1823	5,823	1850	424,258
1824	9,541	1851	480,824
1825	28,393	1852	510,406
1826	31,280	1853	496,905
1827	27,770	1854	544,811
1828	33,150	1855	449,812
1829	25,110	1856	400,425
1830	43,000	1857	400,751
1831	44,500	1858	425,896
1832	77,292	1859	546,816
1833	124,908	1860	517,157
1834	106,500	1861	410,877
1835	131,250	1862	241,837
1836	146,738	1863	517,259
1837	200,000	1864	517,180
1838	154,693	1865	517,025
1839	142,507	1866	400,000
1840	102,264	1867	370,204
1841	78,164	1868	453,821
1842	163,762	1869	563,914
1843	138,806	1870	468,272
1844	219,245	1871	762,682
1845	257,740	1872	1,014,890
1846	284,813	1873	1,081,153

The business of this company for 1874, is merged into that of the Lehigh and Wilkesbarre Coal company, which is its successor.

WILKESBARRE COAL AND IRON COMPANY.

The shipments of this company have been as below :

	Tons.
1869.....	502,485
1870.....	769,226
1871.....	950,754
1872.....	1,168,716
1873.....	1,278,307

The business of this company for 1874, is merged into that of the Lehigh and Wilkesbarre Coal company, its successor.

LEHIGH AND WILKESBARRE COAL COMPANY.

Report of coal shipped by Lehigh and Wilkesbarre Coal company, for the year ending December 31, 1874.

	Gross tons of 2,240 lbs.
Wilkesbarre shipments.....	1,356,610.18
Lehigh shipments.....	587,407.06
Audenried shipments.....	525,363.09
Total.....	2,479,381.13

PENNSYLVANIA AND NEW YORK RAILROAD.

REPORT OF COAL CARRIED FOR YEAR ENDING NOVEMBER 30, 1874.

	Tons.	Cwt.
Anthracite.....	714,030.09	
Bituminous.....	302,717.02	
Total.....	1,016,747.11	

The anthracite was received from—

Lehigh Valley railroad.....	569,718.06
Lackawanna and Bloomsburg railroad.....	53,224.07
Pleasant Valley Branch.....	57,506.01
Sullivan and Erie railroad.....	33,491.15

The bituminous was received from—

Barclay railroad.....	302,258.06
Northern Central railroad.....	458.16

The anthracite was delivered to—

	Tons. Cwt.
Lehigh Valley railroad.....	24.15
Lackawanna and Bloomsburg railroad.....	393.02
Southern Central railroad.....	172,898.06
Ithaca and Athens railroad.....	216,261.05
Erie Pockets for shipment.....	214,096.12
Erie, Watkins direct.....	23,300.18
Individuals on line.....	26,796.02
Used by company.....	26,964.01
Between Waverly and Elmira.....	33,295.08

The bituminous was delivered to—

Erie railway.....	199,862.05
Southern Central railway.....	54,234.19
Ithaca and Athens railroad.....	40,866.17
Lehigh Valley railroad.....	4,824.06
Individuals on line.....	2,493.01
Used by company.....	435.14

The business for the year ending Novemer 29, 1873, was as follows :

Anthracite.....	685,373.15
Bituminous.....	294,868.05
Total.....	980,242.00

MORRIS AND ESSEX RAILROAD.

The following is the business of this branch of the Delaware, Lackawanna and Western railroad company :

YEARS.	Way. Tons.	Through. Tons.	Total. Tons.
1867.....	99,559	133,662	243,221
1868.....	146,820	300,219	447,039
1869.....	192,217	360,066	552,283
1870.....	191,209	655,292	846,500
1871.....	202,052	652,954	855,006
1872.....	137,708	794,648	932,356
1873.....	313,414	1,352,384	1,665,798
1874.....	356,559	1,085,590	1,442,149

MORRIS CANAL.

This canal extends from Phillipsburg, N. J., on the Delaware river, to Jersey City, on the Hudson—101 miles.

The following is a statement of the coal business of the canal since 1845, furnished by J. F. Randolph, Superintendent. This canal is now leased and operated by the Lehigh Valley railroad company :

YEAR.	Lehigh. Tons.	Scranton Tons.	YEAR.	Lehigh. Tons.	Scranton Tons.
1845.....	12,567	.....	1860.....	276,947	127,517
1846.....	41,142	.....	1870.....	275,458	34,385
1847.....	61,951	.....	1871.....	246,260	69,350
1848.....	82,159	.....	1872.....	271,591	70,392
1849.....	103,482	.....	1873.....	245,622	55,592
1850.....	98,100	.....	1874.....	215,490	52,115

PENNSYLVANIA RAILROAD.

UNITED RAILROADS OF NEW JERSEY DIVISION.

The following shows the business of this branch of the Pennsylvania railroad :

	Through. Tons.	Way. Tons.	Total. Tons.
1874.....	899,503	328,405	1,227,908
1873.....	794,865	360,467	1,155,332
1872.....	877,614	87,989	965,553
1871.....	563,093	69,334	632,427
1870.....	632,667	81,910	714,277
1869.....	455,684	72,538	528,223
1868.....	312,228	19,065	330,292
1867.....	269,738	18,586	288,321
1866.....	174,508	13,554	188,062
1865.....	202,781	11,535	214,345
1864.....	161,268	13,095	174,303
1863.....	.....	.....	130,494
1862.....	.....	.....	129,452
1861.....	.....	.....	145,907
1860.....	.....	.....	146,308
1859.....	.....	.....	135,205
1858.....	.....	.....	99,000
1857.....	.....	.....	123,248

The business for the year 1874 was as follows :

	Tons.
Coalport for shipment.....	259,742
South Amboy for shipment.....	639,760
Distribution for consumption.....	288,202
Use of company.....	40,203
	<hr/> 1,227,908 <hr/>

This was received from the following sources:

	Tons.
From Lehigh.....	964,129
From Wyoming.....	263,779
There was actually shipped—	
At Coalport.....	267,854
At South Amboy.....	620,561

CENTRAL RAILWAY OF NEW JERSEY.

LEHIGH AND SUSQUEHANNA BRANCH.

Report of coal received for the year ending December 31, 1874.

	Tons.	Cwt.
From Wyoming region.....	1,519,589.11	
Upper Lehigh region.....	221,192.07	
Beaver Meadow region.....	420,865.19	
Hazleton region.....	238,694.00	
Mauch Chunk region.....	571,945.01	
Total..	2,972,286.18	

This was distributed as follows:

Forwarded east by rail, tidal points.....	1,377,867.12
Forwarded east by rail, local points.....	456,496.05
Forwarded east by rail, use Central division.....	97,338.17
Forwarded east by rail, use Lehigh and Susquehanna.....	11,173.12
At Coalport, for canal.....	726,765.18
At and above Mauch Chunk.....	107,967.02
To Lehigh Valley railroad, at Packerton.....	31,493.13
To Lehigh Valley railroad, at Sugar Notch.....	109,868.04
To Lackawanna and Bloomsburg.....	53,315.15
Total.....	2,972,286.18
For previous year.....	3,089,697.19

LEHIGH CANAL COAL TRADE.

Report of coal carried through the Lehigh canal, for the year 1874:

	Tons.	Cwt.
Mauch Chunk region.....	155,935.15	
Mauch Chunk region, (Hazardville).....	27,151.04	
Beaver Meadow region.....	160,661.11	
Mahanoy region.....	40,728.00	
Hazleton region.....	226,887.18	

	Tons. Cwt.
Upper Lehigh.....	33,530.08
Wyoming region... ..	147,887.11
Total	792,783.07
Same time last year.....	736,251.14

LACKAWANNA COAL TRADE.

DELAWARE, LACKAWANNA AND WESTERN RAILROAD.

Report of coal tonnage for the year ending December 31, 1874.

	Tons. Cwt.
Shipped north.....	783,793.12
Shipped south.....	1,786,643.09
Total	2,570,437.01
Same time, 1873.....	3,136,298.16

DELAWARE AND HUDSON CANAL COMPANY.

Report of coal mined for year ending December 31, 1874.

Forwarded north	2,341,348.12
Forwarded south.....	58,068.17
Total	2,399,417.09
Same time, 1873	2,752,595.11

PENNSYLVANIA COAL COMPANY.

Report of coal mined for year ending December 31, 1874.

Total for the year	1,338,663.13
Same time, 1873.....	1,239,214.05

From their organizations these companies have mined :

YEARS.	Del. and Hud- son canal co. Tons.	Pennsylvania Coal company. Tons.	Dela're, Lacka- wanna and Western R. R. Tons.
1829	7,000		
1830 to 1839.....	846,333		
1840 to 1849.....	2,987,981		
1850 to 1859.....	4,838,855	4,834,723	2,629,364
1860 to 1869.....	10,098,691	7,249,820	13,343,126
1870	2,039,722	3,086,008	2,348,097
1871	1,366,471	802,039	1,916,486
1872	2,930,767	1,213,478	2,836,948
1873	2,752,595	1,239,214	3,136,806
1874	2,399,417	1,338,663	2,570,437

SHAMOKIN, LYKENS VALLEY, ETC.

We find that in 1839, 11,390 tons of coal were shipped by the Northern Central railroad from Shamokin, and up to 1870, there had been sent 4,802,533 tons.

In 1870.....	486,174 tons.
In 1871.....	628,866 "
In 1872.....	569,689 "
In 1873.....	635,383 "
In 1874.....	583,723 " "

We next find in 1849, 25,335 tons of coal were sent from the Lykens Valley, Short Mountain, and up to 1870, there had been sent 2,619,623 tons.

In 1870.....	67,775 tons.
In 1871.....	94,183 "
In 1872.....	50,931 "
In 1873.....	50,248 "

The Big Lick colliery commenced in 1870, and had mined 237,004 tons of coal to the beginning of 1872.

In 1872.....	138,303 tons.
In 1873.....	107,585 "

CHESAPEAKE AND OHIO RAILROAD.

Report of coal received from mines for the year ending December 31, 1874.

Cannel coal.....	26,225 tons.
Splint coal.....	114,605 "
Coke.....	1,930 "
Total	141,760 "

COAL PRODUCTION DURING 1874.

We are enabled to give the following details relative to the Anthracite coal trade during the year 1874:

WYOMING.

	Tons.
Forwarded by Pennsylvania canal.....	321,374
Forwarded by Pennsylvania coal company.....	1,338,663
Forwarded by Delaware, Lackawanna and Western railroad....	2,502,769
Forwarded by Delaware and Hudson canal company.....	2,399,417
Forwarded by Lackawanna and Bloomsburg railroad.....	432,646
Forwarded by Lehigh Valley railroad.....	910,987
Forwarded by Central railroad of New Jersey.....	1,519,590
Total for 1874.....	9,455,466

SCHUYLKILL.

	Tons.
Forwarded by Philadelphia and Reading railroad	4,671,113
Shamokin coal.....	583,723
Lykens Valley coal.....	637,828
Total for 1874.....	5,891,666

LEHIGH.

	Tons.
Forwarded by Lehigh Valley railroad.....	3,152,651
Forwarded by Central railroad of New Jersey	1,210,662
Forwarded by D. H. and W. division of Pennsylvania railroad,	40,687
Total for 1874.....	4,404,000

SULLIVAN AND ERIE.

	Tons.
For the year 1874.....	33,896
For the year 1873	35,267
For the year 1872	54,966
For the year 1871	24,665

This would give a total of 19,785,008 tons for the year 1874, as compared with 19,585,178 tons in 1873. In addition, perhaps, 3,000,000 tons were used in each year in the vicinity of the collieries, that is not reported by the mining companies.

COAL AT SAN FRANCISCO, CALIFORNIA.

The following gives the comparative imports for—

FOREIGN.	1873. Tons.	1874. Tons.	Increase. Tons.	Decrease. Tons.
Australian	96,435	199,109	42,664	
English.....	52,616	37,826		14,790
Vancouver	31,435	51,017	19,582	
Chili	400			400
Japan.....	50			50
<i>Eastern:</i>				
Anthracite.....	18,295	14,263		4,032
Cumberland	8,857	15,475	6,618	
<i>Domestic:</i>				
Mt. Diablo.....	171,741	206,255	34,514	
Coos Bay	38,066	44,857	6,791	
Bellingham Bay.....	21,211	13,685		7,526
Seattle.....	13,572	9,027		4,545
Rocky Mountain	1,904	433		1,471
Totals	454,582	531,947	110,179	32,814

PRODUCTION AND LABOR.

ANTHRACITE COAL.

SUMMARY of the workings of thirty-six collieries of the Philadelphia and Reading coal and iron company, compiled from reports furnished this Bureau by said company.

NAME OF COLLIERY.	Number of men employed.....	Number of boys employed	Total number of men and boys,	Days in operation	Production—tons,	Value.....
Buckville	118	57	175	143 ¹ ₁₀₋₁₁₋₁₂₋₁₃₋₁₄₋₁₅₋₁₆₋₁₇₋₁₈₋₁₉₋₂₀₋₂₁₋₂₂₋₂₃₋₂₄₋₂₅₋₂₆₋₂₇₋₂₈₋₂₉₋₃₀₋₃₁	27,527	\$69,317
Boston Run.....	185	49	234	198 ¹ ₁₀₋₁₁₋₁₂₋₁₃₋₁₄₋₁₅₋₁₆₋₁₇₋₁₈₋₁₉₋₂₀₋₂₁₋₂₂₋₂₃₋₂₄₋₂₅₋₂₆₋₂₇₋₂₈₋₂₉₋₃₀₋₃₁	62,537	174,989
Tunnel	186	82	268	130	38,733	108,498
Phoenix Park, No. 2.....	111	54	165	174 ¹ ₁₀₋₁₁₋₁₂₋₁₃₋₁₄₋₁₅₋₁₆₋₁₇₋₁₈₋₁₉₋₂₀₋₂₁₋₂₂₋₂₃₋₂₄₋₂₅₋₂₆₋₂₇₋₂₈₋₂₉₋₃₀₋₃₁	35,470	99,135
Plank Ridge.....	287	115	402	225	131,183	345,205
Beechwood	252	134	386	172	74,333	185,531
Ellangowan.....	246	93	339	181	77,035	198,932
East Franklin	139	44	183	150	27,000	83,063
Keystone	69	17	86	104	12,926	35,866
*Anchor	136	51	187	34	5,776	15,669
Bast	205	74	279	147	52,340	141,593
*West Brookside	210	60	270	120	54,668	191,113
*West Shenandoah.....	77	30	107	62 ¹ ₁₀₋₁₁₋₁₂₋₁₃₋₁₄₋₁₅₋₁₆₋₁₇₋₁₈₋₁₉₋₂₀₋₂₁₋₂₂₋₂₃₋₂₄₋₂₅₋₂₆₋₂₇₋₂₈₋₂₉₋₃₀₋₃₁	10,211	27,013
Thomaston	224	66	290	63	16,573	45,710
Potts	211	94	305	153	51,745	141,868
*Oakdale	192	53	245	82 ¹ ₁₀₋₁₁₋₁₂₋₁₃₋₁₄₋₁₅₋₁₆₋₁₇₋₁₈₋₁₉₋₂₀₋₂₁₋₂₂₋₂₃₋₂₄₋₂₅₋₂₆₋₂₇₋₂₈₋₂₉₋₃₀₋₃₁	21,288	55,221
Pine Forest.....	158	76	234	183	58,556	147,260
North Mahanoy	136	59	195	120 ¹ ₁₀₋₁₁₋₁₂₋₁₃₋₁₄₋₁₅₋₁₆₋₁₇₋₁₈₋₁₉₋₂₀₋₂₁₋₂₂₋₂₃₋₂₄₋₂₅₋₂₆₋₂₇₋₂₈₋₂₉₋₃₀₋₃₁	33,356	83,849
North Franklin, No. 2.....	232	61	293	137	39,353	99,934
†Mt. Carmel shaft	89	31	120	40	3,176	9,447
North Franklin, No. 1.....	113	53	166	147	26,545	79,211
Mine Hill Gap.....	222	88	310	190 ¹ ₁₀₋₁₁₋₁₂₋₁₃₋₁₄₋₁₅₋₁₆₋₁₇₋₁₈₋₁₉₋₂₀₋₂₁₋₂₂₋₂₃₋₂₄₋₂₅₋₂₆₋₂₇₋₂₈₋₂₉₋₃₀₋₃₁	58,487	149,213
Mahanoy City	207	63	270	249	127,006	343,447
Locust Spring	53	18	71	93	13,920	38,766
*Locust Run.....	163	64	227	94	25,479	69,052
Knickerbocker	151	68	219	42	10,313	27,904
Indian Ridge.....	381	126	507	190 ¹ ₁₀₋₁₁₋₁₂₋₁₃₋₁₄₋₁₅₋₁₆₋₁₇₋₁₈₋₁₉₋₂₀₋₂₁₋₂₂₋₂₃₋₂₄₋₂₅₋₂₆₋₂₇₋₂₈₋₂₉₋₃₀₋₃₁	120,763	319,219
Glendower	121	49	170	67	13,217	33,905
Forestville.....	127	61	188	91	23,878	65,371
Elmwood.....	100	33	133	117	18,361	46,141
Ellangowan shaft.....	30					
*Helfenstien.....	65	18	83	23 ¹ ₁₀₋₁₁₋₁₂₋₁₃₋₁₄₋₁₅₋₁₆₋₁₇₋₁₈₋₁₉₋₂₀₋₂₁₋₂₂₋₂₃₋₂₄₋₂₅₋₂₆₋₂₇₋₂₈₋₂₉₋₃₀₋₃₁	2,700	7,698
Merriam.....	164	41	205	195	59,908	170,199
†Preston, No. 1.....	75	35	110	65	4,409	12,083
Preston, No. 2.....	198	97	295	74	20,146	52,006
Preston, Nos. 3 and 4.....	146	31	177	56	8,445	22,873
	5,769	2,145	7,914	.....	1,366,813	3,696,301

*Colliery owned by the company only part of the year.

†New colliery.

‡Preston coal and improvement company.

PHILADELPHIA AND READING COAL AND IRON COMPANY—CONTINUED.

WAGES PAID EMPLOYEES PER DAY.

NAME OF COLLIERY.	Miners on contract.		Miners on wages.		Outside laborers—men.		Outside laborers—boys.		Inside laborers—men.		Inside laborers—boys.		Outside mechanics—men.		Outside mechanics—boys.		Outside mule drivers—men.		Outside mule drivers—boys.		Inside mule drivers—men.		Inside mule drivers—boys.		Dumpers.		Slate pickers—men.		Slate pickers—boys.		Mining overseers.	
	\$1 25 to	\$5 75	\$2 17	\$1 70	\$1 16	\$2 03	\$0 75	\$2 18	\$1 33	\$2 00	\$1 17	\$2 04	\$1 29	\$1 50	\$1 65	\$0 65	\$2 40	\$3 40	\$2 40	\$1 17	\$2 04	\$1 29	\$1 50	\$1 83	\$1 50	\$1 65	\$0 65	\$2 40	\$3 40	\$2 40	\$1 83	
Buckville.....	2 47 to	4 37	2 25	1 70	1 17	2 07	1 16	2 50	1 33	1 77	1 08	2 08	1 24	1 83	1 67	75	3 62	3 62	3 62	1 83	2 08	1 24	1 83	1 67	75	75	3 62	3 62	3 62	1 83		
Boston Run.....	3 66 to	7 86	2 35	1 81	1 17	2 16	1 00	2 56	1 50	1 50	1 08	2 08	1 24	1 83	1 67	75	3 62	3 62	3 62	1 83	2 08	1 24	1 83	1 67	75	75	3 62	3 62	3 62	1 83		
Tunnel.....	1 92 to	5 09	2 17	1 79	1 08	1 89	96	2 33	1 73	1 50	1 08	2 08	1 24	1 83	1 67	75	3 62	3 62	3 62	1 83	2 08	1 24	1 83	1 67	75	75	3 62	3 62	3 62	1 83		
Phoenix Park, No. 2.....	3 44 to	6 17	2 17	1 70	1 08	2 03	83	2 39	1 73	1 50	1 08	2 08	1 24	1 83	1 67	75	3 62	3 62	3 62	1 83	2 08	1 24	1 83	1 67	75	75	3 62	3 62	3 62	1 83		
Plank Ridge.....	1 96 to	5 04	2 17	1 69	1 00	1 96	1 02	2 48	1 92	1 50	1 08	2 08	1 24	1 83	1 67	75	3 62	3 62	3 62	1 83	2 08	1 24	1 83	1 67	75	75	3 62	3 62	3 62	1 83		
Beechwood.....	2 12 to	5 51	2 17	1 73	1 00	1 91	83	2 40	1 92	1 50	1 08	2 08	1 24	1 83	1 67	75	3 62	3 62	3 62	1 83	2 08	1 24	1 83	1 67	75	75	3 62	3 62	3 62	1 83		
Ellangowan.....	2 11 to	3 41	2 17	1 70	1 00	1 98	77	2 37	1 67	1 50	1 08	2 08	1 24	1 83	1 67	75	3 62	3 62	3 62	1 83	2 08	1 24	1 83	1 67	75	75	3 62	3 62	3 62	1 83		
East Franklin.....	3 20 to	5 58	2 33	1 80	1 17	2 21	1 12	2 58	1 83	1 50	1 08	2 08	1 24	1 83	1 67	75	3 62	3 62	3 62	1 83	2 08	1 24	1 83	1 67	75	75	3 62	3 62	3 62	1 83		
Keystone.....	2 00 to	5 10	2 25	1 75	1 00	2 12	1 00	2 35	1 83	1 50	1 08	2 08	1 24	1 83	1 67	75	3 62	3 62	3 62	1 83	2 08	1 24	1 83	1 67	75	75	3 62	3 62	3 62	1 83		
Anchor.....	1 62 to	7 88	2 35	1 79	1 33	2 09	1 00	2 37	1 83	1 50	1 08	2 08	1 24	1 83	1 67	75	3 62	3 62	3 62	1 83	2 08	1 24	1 83	1 67	75	75	3 62	3 62	3 62	1 83		
East.....	1 90 to	5 99	3 15	1 87	1 17	2 03	78	2 41	1 83	1 50	1 08	2 08	1 24	1 83	1 67	75	3 62	3 62	3 62	1 83	2 08	1 24	1 83	1 67	75	75	3 62	3 62	3 62	1 83		
West Brookside.....	2 09 to	6 31	2 17	1 75	1 16	2 04	91	2 23	1 83	1 50	1 08	2 08	1 24	1 83	1 67	75	3 62	3 62	3 62	1 83	2 08	1 24	1 83	1 67	75	75	3 62	3 62	3 62	1 83		
West Shenandoah.....	2 28 to	5 58	2 45	1 80	1 12	2 19	1 00	2 25	1 83	1 50	1 08	2 08	1 24	1 83	1 67	75	3 62	3 62	3 62	1 83	2 08	1 24	1 83	1 67	75	75	3 62	3 62	3 62	1 83		
Thomaston.....	3 20 to	6 08	2 33	1 79	1 12	2 45	1 00	2 52	1 55	1 50	1 08	2 08	1 24	1 83	1 67	75	3 62	3 62	3 62	1 83	2 08	1 24	1 83	1 67	75	75	3 62	3 62	3 62	1 83		
Potts.....	2 65 to	4 22	2 45	1 70	1 12	2 13	95	2 47	1 80	1 50	1 08	2 08	1 24	1 83	1 67	75	3 62	3 62	3 62	1 83	2 08	1 24	1 83	1 67	75	75	3 62	3 62	3 62	1 83		
Oakdale.....	2 03 to	4 05	2 17	1 71	1 12	1 95	82	2 48	1 80	1 50	1 08	2 08	1 24	1 83	1 67	75	3 62	3 62	3 62	1 83	2 08	1 24	1 83	1 67	75	75	3 62	3 62	3 62	1 83		
Pine Forest.....	2 08 to	4 63	2 17	1 69	1 00	1 99	59	2 43	1 80	1 50	1 08	2 08	1 24	1 83	1 67	75	3 62	3 62	3 62	1 83	2 08	1 24	1 83	1 67	75	75	3 62	3 62	3 62	1 83		
North Mahanoy.....	2 22 to	4 07	2 08	1 65	1 04	1 95	1 00	2 27	1 80	1 50	1 08	2 08	1 24	1 83	1 67	75	3 62	3 62	3 62	1 83	2 08	1 24	1 83	1 67	75	75	3 62	3 62	3 62	1 83		
North Franklin, No. 2.....	1 95 to	5 11	2 37	1 94	1 04	2 21	85	2 37	1 80	1 50	1 08	2 08	1 24	1 83	1 67	75	3 62	3 62	3 62	1 83	2 08	1 24	1 83	1 67	75	75	3 62	3 62	3 62	1 83		
Mt. Carmel Shaft.....	3 03 to	7 40	2 08	1 64	1 04	2 00	83	2 33	1 66	1 50	1 08	2 08	1 24	1 83	1 67	75	3 62	3 62	3 62	1 83	2 08	1 24	1 83	1 67	75	75	3 62	3 62	3 62	1 83		
North Franklin, No. 1.....	2 55 to	5 50	2 17	1 85	1 12	1 94	83	2 42	1 67	1 50	1 08	2 08	1 24	1 83	1 67	75	3 62	3 62	3 62	1 83	2 08	1 24	1 83	1 67	75	75	3 62	3 62	3 62	1 83		
Mine Hill Gap.....	2 55 to	5 50	2 17	1 85	1 12	1 94	83	2 42	1 67	1 50	1 08	2 08	1 24	1 83	1 67	75	3 62	3 62	3 62	1 83	2 08	1 24	1 83	1 67	75	75	3 62	3 62	3 62	1 83		

WAGES PAID EMPLOYEES PER DAY—CONTINUED.

NAME OF COLLIERY.	Miners on contract.....	Miners on wages.....	Outside laborers—men.....	Outside laborers—boys.....	Inside laborers—men.....	Inside laborers—boys.....	Outside mechanics—men.....	Outside mechanics—boys.....	Outside mule drivers—men ..	Outside mule drivers—boys...	Inside mule drivers—men....	Inside mule drivers—boys....	Dumpers.....	Slate pickers—men.....	Slate pickers—boys.....	Mining overseers.....
Mahanoy City	\$2 11 to \$3 54	\$2 17	\$1 70	.....	\$2 11	\$0 82	\$2 48	.....	\$2 00	\$1 06	\$1 92	\$1 33	\$1 75	\$1 41	\$0 65	\$0 68
Locust Spring	3 60 to 6 58	2 25	1 72	.....	2 07	90	2 58	.....	2 00	1 17	1 75	1 42	1 67	.....	69	48
Locust Run.....	3 68 to 6 45	2 25	1 70	.....	2 02	91	2 49	.....	1 75	1 12	1 75	1 00	1 67	1 46	65	3 33
Knickerbocker	2 41 to 7 20	2 17	1 75	\$1 17	2 07	1 00	2 43	.....	1 67	1 33	1 64	1 00	1 82	1 37	87	3 67
Indian Ridge.....	3 15 to 4 91	2 25	1 70	.....	1 97	1 18	2 52	.....	1 86	1 17	1 80	1 28	2 00	1 47	91	2 95
Glendower.....	2 11 to 4 57	2 31	1 78	.....	1 78	70	2 37	.....	2 17	1 18	1 79	1 17	1 67	1 50	63	3 03
Forestville.....	2 11 to 4 57	2 31	1 78	.....	1 87	70	2 11	.....	2 25	1 00	2 00	1 17	1 84	.....	63	3 81
Elmwood.....	2 09 to 4 01	2 00	1 83	.....	1 92	.....	2 24	.....	2 00	1 01	.....	1 16	1 67	.....	63	3 60
Ellangowan Shaft.....	.....	2 17	1 89	.....	1 83	.....	2 50	.....	2 00	.....	.....	.....	1 67	.....	55	3 55
Helfenstein	2 87 to 3 23	2 17	1 74	1 08	2 17	.....	2 30	.....	2 00	.....	1 50	1 33	1 67	.....	72	3 74
Merriman.....	2 27 to 7 71	2 17	1 79	.....	2 03	1 00	2 44	.....	2 00	.....	1 83	1 33	1 67	1 46	73	3 48
Preston, No. 1.....	2 03 to 3 39	2 16	1 74	1 14	1 86	83	2 48	.....	1 95	1 17	1 83	1 33	1 83	1 54	76	3 32
Preston, No. 2.....	2 18 to 4 58	2 17	1 79	1 29	2 04	95	2 43	.....	1 50	1 08	1 67	1 33	1 83	1 42	61	3 38
Preston, Nos. 3 and 4.....	3 04 to 4 57	2 33	1 82	.....	1 98	1 00	2 51	.....	1 50	1 08	1 67	1 33	1 83	1 42	61	3 38

BLOSSBURG COAL TRADE.

The following statements present figures for 1875 :

	Net tons.
Fall Brook coal company.. .. .	190,806
Morris Run coal company.....	164,506
Blossburg coal company .. .	226,420
Total .. .	<u>581,732</u>

Since the opening of the mines in 1840, the shipments by each company have been as follows :

	Net tons.
Arbon coal company, 1840 to 1843.	49,633
William M. Mallory, 1844 to 1857.....	405,116
D. S. Magee, 1856 to 1859.....	78,996

MORRIS RUN MINES

Tioga improvement company, 1853 to 1863.....	323,174
Salt company of Onondago, 1863 to 1866.....	267,809
Morris Run coal company, 1864 to 1875	3,340,687
	<u>3,931,670</u>
Fall Brook coal company, 1860 to 1875.....	2,946,758
Blossburg coal company, 1866 to 1875	1,654,344
Total production of the district	<u>9,066,517</u>

TOWANDA DISTRICT, 1875..

Towanda coal company	200,424
Schrader coal company	157,686
Fall Creek coal company	18,527
Total production.....	<u>376,637</u>

COAL STATEMENT FOR 1875.

Amount of coal shipped from the several collieries of Northumberland county, during the year 1875; the coal trade of the Shamokin region from its commencement in 1839 to the present time, including a period of twenty-six years, and various other tables and facts of general interest to those concerned in the coal trade. Compiled by Hon. J. J. John, and furnished to this Bureau.

	COLLIERIES.	OPERATORS.	Tonnage, 1875.
1....	Cameron	Mineral Railroad and Mining Co..	270,199.10
2....	Big Mountain.....	Patterson, Llewellyn & Co.....	198,135.01
3....	Buck Ridge	May, Audenried & Co.....	110,237.08
4....	Burnside.....	Isaac May & Co.....	108,520.18
5....	Luke Fidler	Mineral Railroad & Mining Co....	103,800.19
6....	Bear Valley	A. A. Heim & Goodwill	91,977.07
7....	Henry Clay.....	J. Langdon & Co.....	85,945.12
8....	Trevorton.....	P. and R. C. and I Co.....	76,419.14
9....	Hickory Swamp.....	Mineral Railroad and Mining Co..	70,519.14
10....	Enterprise	Enterprise Coal Co.....	52,665.06
11....	Monitor.....	G. W. Johns.....	48,855.13
12....	Ben Franklin.....	Douty and Baumgardner.....	46,905.09
13....	Stuartville.....	Wm. Montelius.....	44,694.00
14....	Excelsior.....	Excelsior Mining Co.....	43,463.05
15....	Reliance	Reliance Coal Co.....	38,920.05
16....	George Fales.....	A. A. Heim and Goodwill.....	32,576.17
17....	Locust Spring	P. and R. C. and I. Co.....	31,750.00
18....	Lancaster.....	Smith and Keiser	24,953.18
19....	Alaska Shaft.....	P. and R. C. and I. Co.....	21,393.00
20....	Morton	Thos. Morton.....	20,803.14
21....	Greenback.....	Guiterman, Gorman & Co.....	20,377.07
22....	Hickory Ridge.....	Mineral Railroad and Mining Co..	18,940.02
23....	Locust Gap.....	Graeber and Kemple.....	18,830.16
24....	Helpenstein.....	P. and R. C. and I. Co.....	15,974.11
25....	Coal Ridge.....	Burton, Bros. & Co.....	12,411.13
26....	Franklin.....	Lovel, Booth and Elms	10,667.12
27....	Black Diamond.....	Schwenk & Co.....	5,338.03
28....	Marshall.....	Reese and Brother.....	2,911.17
29....	Royal Oak.....	Tillet and Brother.....	800.00
30....	Lambert.....	Wm. Brown.....	169.15
Total for 1875.....			1,628,683.01

Year.	Tons.	Year.	Tons.
1839	11,930	1859	305,043
1840	15,505	1860	300,256
1841	21,463	1861	290,928
1842	10,000	1862	304,865
1843	10,000	1863	337,136
1844	13,087	1864	389,779
1845	10,000	1865	484,257
1846	12,572	1866	610,809
1847	14,904	1867	533,815
1848	19,356	1868	911,784
1849	19,650	1869	974,015
1850	19,921	1870	1,025,515
1851	24,899	1871	1,213,096
1852	25,846	1872	1,221,326
1853	15,000	1873	1,234,063
1854	63,500	1874	1,221,550
1855	116,117	1875	1,628,683
1856	210,518		
1857	266,517	Total	14,130,790
1858	242,579		

AN ESTIMATE OF THE SEVERAL ANTHRACITE COAL FIELDS OF PENNSYLVANIA.

Region.	Thickness of coal.	No. acres.
Schuylkill.....	100 feet.....	115,200
Lehigh.....	50 ".....	33,160
Shamokin.....	70 ".....	32,000
Lackawanna.....	60 ".....	64,000
Wyoming.....	100 ".....	62,000

OUTLETS TO MARKET FOR THE SHAMOKIN COAL.

To Baltimore, York, &c.....	via N. C. R. W.
Philadelphia.....	" P. and R. R. R.
New York.....	" L. V. R. R.
Erie and the lakes.....	" P. and E. R. R.
Elmira and Northern New York.....	" W. and E. R. R.
Havre de Grace and the South.....	" Penn'a canal.

RECAPITULATION.

	Tons.
Shipments for 1875.....	1,628,683
Estimated consumption at breaker.....	70,000
Total for 1875.....	1,698,683
Total for 1874.....	1,291,550
Gain for 1875.....	407,133

AREA OF ANTHRACITE COAL BASINS OF PENNSYLVANIA.

	Square miles.
1. Southern coal fields.....	146
2. Middle coal fields.....	Shamokin, 50
	Mahanoy, 41
	Lehigh, 37
	— 128
3. Northern coal fields.....	198
Total area of all basins.....	472

PENNSYLVANIA COAL COMPANY.—(OFFICIAL.)

Annual product of mines in 1874..... 1,341,336 tons.

Whole number of persons employed about the mines.... 2,939

CLASSIFICATION	No. of men.....	No. of boys.....	Average daily wages of men,	Average daily wages of boys,	Average time in operation during year.....
Miners on contract.....	114	.....	2 61 ¹ / ₂	.....	261
Miners on wages.....	672	.....	2 40	.....	300
Outside laborers.....	2	.....	2 35	.....	300
Inside laborers.....	36	.....	1 12 ¹ / ₂	.....	300
Outside mechanics.....	11	.....	1 65	.....	300
Inside mechanics.....	125	.....	1 65	.....	300
Outside mule drivers.....	15	.....	1 70	.....	300
Inside mule drivers.....	680	.....	1 87 ¹ / ₂	.....	300
Outside mechanics.....	2	.....	2 16	.....	310
Inside mechanics.....	92	.....	2 40	.....	305
Outside mule drivers.....	4	.....	2 16	.....	300
Inside mule drivers.....	8	.....	2 25	.....	300
Outside mule drivers.....	.....	5	.....	1 00	300
Inside mule drivers.....	.....	36	.....	1 00	300
Outside mule drivers.....	.....	33	.....	1 12	300
Inside mule drivers.....	.....	201	.....	1 12 ¹ / ₂	300
Weigh master.....	2	.....	2 28	.....	300
Dumpers.....	14	.....	2 25	.....	300
Slate pickers.....	7	.....	1 65	.....	300
Mining overseers.....	89	.....	1 65	.....	300
Civil engineers.....	.....	71	.....	63 ¹ / ₂	214 ¹ / ₂
Coal inspectors.....	.....	323	.....	56	300
Stable and farm hands.....	2	.....	2 00	.....	313
Sundry labor.....	20	.....	3 30	.....	300
Company men inside.....	.....	2	.....	.....	340
Door boys.....	.....	14	.....	.....	214 ¹ / ₂
.....	.....	24	.....	.....	300
.....	.....	70	.....	.....	300
.....	.....	34	.....	.....	300
.....	.....	157	.....	.....	300
.....	.....	23	.....	.....	300
.....	.....	51	.....	.....	300
.....	2,196	743	.....	.....	.....

(Signed)

THOS. B. SMITH.

FEBRUARY 15, 1876.

THE FOREIGN TRADE OF PENNSYLVANIA, VIA THE PORT OF PHILADELPHIA.

As the chief, and in fact, about the only port in Pennsylvania, the foreign trade of Philadelphia has become synonymous with that of the State, but while centralized by force of circumstances within the narrow limits of one city, the growth of the international commerce of Pennsylvania has more than a local interest and deserves a closer study than is generally accorded the subject. In submitting, therefore, the annual report on the Foreign Trade of Philadelphia, its representative character must be kept clearly in view, nor is that portion of our community into whose charge the foreign commercial relations of the State are mainly entrusted unwilling that the benefits derivable from an interchange of commodities between nation and nation should stop short at their own doors.

Commencing the year just closed during a season of world-wide business depression, the outlook for the succeeding twelve months was far from encouraging, and as events have proved, the return of trade to a more healthy tone has been slow and uncertain. Commerce, however, though restricted, has not stood idle, and its diminished volume, while seeking the most direct channels, has flowed through Philadelphia with as full a tide as heretofore. The nucleus of a system of railroads which links her to every State in the Union, and combining with terminal facilities of surpassing excellence, large marine communication with all parts of the globe, Philadelphia affords a passage for that vast traffic between the New and Old Worlds as unlimited in capacity as it is unequalled in advantages, rendering the increase of her trade a certainty and making retrogression impossible. In no other city, indeed, on the Atlantic coast has the problem of rapid and economical transportation been so thoroughly solved as in Philadelphia and pre-eminent though she is as a manufacturing centre, her advantages as a port must sooner or later receive equal recognition. The development, in fact, of her resources has been ahead of her trade, which, while yearly growing in volume, will take long to attain a magnitude commensurate with the facilities provided for its conduct, and the statistics now laid before our readers, respecting the Import and Export trade of Philadelphia, although representing an encouraging increase in in the business of the port, are as little a criterion of its capacity, as the crushing of a nut-shell would illustrate the power of a steam hammer.

THE FOREIGN IMPORT TRADE OF PHILADELPHIA FOR 1875,

Possessing, in a greater or less degree, within our own borders all the necessities and most of the luxuries of life, the increasing development of native industries will, sooner or later, practically stop the importation of foreign merchandise, save in the shape of raw material, and although the cheaper labor of other countries may, in some cases, indefinitely postpone the inevitable, the fact is patent enough that, under existing circumstances, any large or permanent increase in our imports is impossible. But production, not consumption, is the true gauge of progress, and even were other evidence wanting, the change in the nature, as well as the decline in the aggregate of the import trade of the country, which has been noticeable during the past few years, must offer very convincing proof that the day of our dependence on the manufactories and workshops of foreign nations is a thing of the past, while in certain lines of goods America promises to become the exporter of what she was formerly the importer. Notwithstanding, however, this general diminution in the westward movement of foreign merchandise, the import trade of Philadelphia has so far shown but little change, her unrivalled advantages as a port of entry and distributing centre, gradually bringing within her grasp a larger percentage of the total trade of the country, and checking what would otherwise be her share in the natural and general decline. With these preliminary remarks, attention is now asked to the following statement of import entries brought from foreign countries in American and foreign vessels into the customs district of Philadelphia, during the year 1875:

STATEMENT of Imports into the port of Philadelphia from foreign countries
during the year 1875.

ARTICLES.	Quantity.	Value.	Totals.
BELGIUM.			
<i>Free of duty:—</i>			
Apparatus, scientific.....		\$3,030	
Books.....		1,001	
Chemicals.....		49,826	
Coffee, lbs.....	12,480	2,848	
Hides.....		40,016	
Ivory.....		3,202	
Household effects.....		3,220	
Madder, lbs.....	102,807	5,656	
Paintings.....		3,684	
Paper material.....		2,124	
Shells.....		8,137	
Silk, raw, lbs.....	330	2,769	
Miscellaneous.....		2,253	
Total free of duty.....		127,766	
<i>Subject to duty:—</i>			
Books.....		4,061	
Cement.....		1,205	
Chemicals.....		17,139	
Clay and clay pipes.....		8,395	
Cotton manufactures.....		20,878	
Earthen and stone ware.....		6,493	
Fancy goods.....		10,255	
Fish—Sardines.....		1,161	
Flax manufactures.....		3,242	
Furs.....		23,442	
Glass and glassware.....		87,018	
Hair, human and other.....		1,263	
Hops, lbs.....	23,078	10,497	
Ink.....		1,003	
Iron—Pig, lbs.....	33,064,240	453,086	
Bar, lbs.....	517,830	10,608	
Muskets.....		11,881	
Other manufactures.....		17,843	
Lead in bars, lbs.....	1,666,409	81,318	
Leather and manufactures.....		13,209	
Metals.....		3,401	
Oil—Olive, gallons.....	791	1,920	
Other.....		927	
Prints.....		1,372	
Paintings.....		9,985	
Paper manufactures.....		3,939	
Pickles.....		5,342	
Provisions.....		20,104	
Seeds.....		3,043	
Silk manufactures.....		4,561	
Soap, lbs.....	2,063	935	
Starch syrup.....		4,736	
Tobacco, manufactured.....		921	
Trees and plants.....		2,980	
Spirits, gallons.....	27,533	25,017	
Wine, gallons.....	151,343	132,516	
Wood manufactures.....		7,174	
Wool—Unmanufactured, lbs.....	287,862	81,687	
Manufactures.....		16,040	
Zinc, in sheets, lbs.....	210,798	12,822	
Miscellaneous.....		3,708	
BRAZIL.			\$1,266,933
<i>Subject to duty:—</i>			
Sugar, lbs.....	2,917,033	101,361	101,861

FOREIGN IMPORTS—CONTINUED.

ARTICLES.	Quantity.	Value.	Totals.
GREENLAND.			
<i>Free of duty:—</i>			
Kryolite.....		\$101,431	\$101,431
FRANCE.			
<i>Free of duty:—</i>			
Chalk, tons.....	2,448	2,436	
<i>Subject to duty:—</i>			
Oil—Olive, gallons.....	2,305	5,598	
Spirits, gallons.....	3,493	7,308	
Wine, gallons.....	143,129	51,550	
Vegetables.....		2,558	
Miscellaneous.....		347	
			69,707
FRENCH WEST INDIES.			
<i>Subject to duty:—</i>			
Sugar, brown, lbs.....	4,280,590	153,208	
Miscellaneous.....		455	
			153,663
FRENCH POSSESSIONS IN AFRICA.			
<i>Subject to duty:—</i>			
Iron ore.....		13,295	
Miscellaneous.....		16	
			13,311
GERMANY.			
<i>Free of duty:—</i>			
Chemicals.....		22,103	
Dunging salt.....		1,587	
Dyewood, cwts.....	4,200	12,818	
Paper material.....		63,804	
Plumbago.....		1,339	
Miscellaneous.....		139	
Total free of duty.....		101,290	
<i>Subject to duty:—</i>			
Chemicals.....		10,635	
Clay and clay pipes.....		14,841	
Earthen and stoneware.....		5,386	
Fancy goods.....		47,692	
Glassware.....		9,468	
Grape sugar.....		2,396	
Iron—Bar, lbs.....	22,400	742	
Old, tons.....	100	5,119	
Other manufactures.....		75,872	
Kiserite.....		3,183	
Lead in bars, lbs.....	2,119,669	106,021	
Leather.....		998	
Marble and stone manufacturers.....		3,596	
Musical instruments.....		4,741	
Paper manufactures.....		5,291	
Salt, lbs.....	448,304	2,298	
Silk manufactures.....		1,969	
Wood manufactures.....		6,262	
Wool manufactures.....		27,747	
Miscellaneous.....		5,235	
			440,782
ENGLAND.			
<i>Free of duty:—</i>			
Articles of the United States.....		5,604	
Argols, lbs.....	473,562	74,703	
Bark, medicinal, lbs.....	80,894	47,335	
Bolting cloths.....		668	
Books.....		23,119	
Chalk.....		5,526	
Chemicals.....		132,611	
Chloride of lime, lbs.....	8,472,101	183,511	

FOREIGN IMPORTS—CONTINUED.

ARTICLES.	Quantity.	Value.	Totals.
ENGLAND—CONTINUED.			
Cliffstone		\$3,726	
Cochineal, lbs.	32,244	17,184	
Coffee, lbs.	166,179	39,784	
Gums, lbs.	416,017	42,599	
Hair, unmanufactured		2,070	
Hides		291,204	
Household effects		1,490	
Indigo, lbs.	36,409	32,879	
Ivory		1,091	
Instruments, philosophical		1,538	
Machinery		2,648	
Lime		1,717	
Manure		6,936	
Mineral specimens		1,551	
Oils		8,041	
Paintings		3,065	
Paper material		25,805	
Platinum		17,884	
Plumbago		1,144	
Quicksilver		16,088	
Seeds		9,200	
Sheathing felt		1,140	
Shells		30,839	
Silk, raw, lbs.	3,929	21,758	
Tea, lbs.	23,609	7,387	
Tin in bars, cwts.	2,836	67,242	
Miscellaneous		11,347	
Total free of duty		1,140,434	
<i>Subject to duty:—</i>			
Beer and ale, gallons	21,044	20,972	
Blacking		4,362	
Books		106,558	
Brass manufactures		10,063	
Breadstuffs		20,180	
Bricks and tiles		4,599	
Buttons		35,459	
Cement		5,524	
Chemicals		226,488	
Clay and clay pipes		19,834	
Clocks		27,911	
Coal, bituminous, tons	3,063	9,155	
Copper manufactures		25,849	
Corks		6,444	
Cotton manufactures		1,099,414	
Earthen and stoneware		339,037	
Emery		677	
Fancy goods		50,661	
Felt, roofing		780	
Flax manufactures		824,019	
Fruits		227,759	
Furs		49,567	
Ginger ale		1,652	
Glass and manufactures		63,833	
Hair manufactures		22,615	
Hemp manufactures		5,540	
Hops, lbs.	6,690	5,349	
India rubber manufactures		5,485	
Ink		9,469	
Instruments, philosophical		1,775	
Iron—Pig, lbs.	6,754,064	88,525	
Bar, lbs.	382,826	13,815	
Old, tons	109	2,631	

FOREIGN IMPORTS—CONTINUED.

ARTICLES.	Quantity.	Value.	Totals.
ENGLAND—CONTINUED.			
Iron—Hardware.....		\$11,220	
Anchors, lbs.....	431,812	23,442	
Machinery.....		69,303	
Muskets and rifles.....		26,872	
Steel ingots.....		128,200	
Other manufactures.....		337,191	
Jewelry.....		14,078	
Jute manufactures.....		17,525	
Kiserite.....		768	
Lead, lbs.....	95,010	4,884	
Leather and manufactures.....		216,889	
Marble.....		25,312	
Metals.....		14,495	
Musical instruments.....		16,377	
Oils—Olive, gallons.....	1,823	2,751	
Other.....		9,309	
Opium, lbs.....	109,867	389,965	
Paintings.....		40,747	
Paints.....		36,710	
Paper manufactures.....		73,101	
Perfumery.....		9,708	
Pickles.....		6,305	
Precious stones.....		79,179	
Provisions.....		917	
Salt, lbs.....	53,670,345	155,396	
Seeds.....		20,796	
Silk manufactures.....		557,108	
Soap, lbs.....	43,807	4,903	
Soda—Bicarbonate, lbs.....	68,508	1,781	
Carbonate, lbs.....	33,959,951	630,993	
Caustic, lbs.....	3,258,199	117,511	
Spices, lbs.....	47,813	13,639	
Sponges.....		774	
Starch syrup.....		745	
Straw manufactures.....		8,230	
Confectionary.....		1,057	
Tin in plates, cwts.....	290,991	1,805,229	
Tin manufactures.....		9,334	
Trees and plants.....		3,626	
Vegetables.....		2,218	
Spirits, gallons.....	27,501	42,866	
Wine, gallons.....	21,841	27,475	
Watches.....		17,384	
Wood manufactures.....		28,957	
Wool unmanufactures, lbs.....	1,582,922	311,656	
Wool manufactures.....		2,512,003	
Zinc in sheets, lbs.....	14,070	928	
Miscellaneous.....		12,349	
SCOTLAND.			\$12,318,666
<i>Subject to duty :—</i>			
Beer, gallons.....	155	112	112
NOVA SCOTIA.			
<i>Free of duty :—</i>			
Fish, fresh.....		3,420	
Gypsum, tons.....	11,393	13,055	
Wood, unmanufactured.....		5,705	
Total free of duty.....		22,180	
<i>Subject to duty :—</i>			
Burley, bushels.....	9,500	9,507	
Plaster, calcined.....		15,243	

FOREIGN IMPORTS—CONTINUED.

ARTICLES.	Quantity.	Value.	Totals.
NOVA SCOTIA—CONTINUED.			
Vegetables.....		\$8,638	
Wood and boards.....		19,271	
Wool, unmanufactured lbs.....	20,228	7,433	
Miscellaneous.....		674	
			\$82,946
BRITISH WEST INDIES.			
<i>Free of duty:—</i>			
Dyewoods, cwts.....	91,113	89,118	
Guano, tons.....	400	4,100	
Paper material.....		2,091	
Miscellaneous.....		372	
Total free of duty.....		95,681	
<i>Subject to duty:—</i>			
Fruits.....		12,053	
Salt, lbs.....	20,596,025	20,496	
Sugar, lbs.....	1,205,195	50,646	
Molasses, gallons.....	693,043	134,840	
Vegetables.....		23,354	
Miscellaneous.....		759	
			337,829
BRITISH GUIANA.			
<i>Subject to duty:—</i>			
Molasses, gallons.....	30,554	10,810	
Melado, lbs.....	3,540	166	
			10,976
HAYTI.			
<i>Free of duty:—</i>			
Dyewood, cwts.....	8,570	8,968	8,968
ITALY.			
<i>Free of duty:—</i>			
Articles of the United States.....		1,627	
Cocanuts.....		1,384	
Oil, Vegetable, gallons.....	9,360	5,896	
Paintings.....		879	
Pumice stone.....		1,385	
Rags.....		116,987	
Sulphur, tons.....	6,761	212,787	
Miscellaneous.....		1,019	
Total free of duty.....		341,964	
<i>Subject to duty:—</i>			
Chemicals.....		105,162	
Fruits.....		409,755	
Hemp, raw, tons.....	49	10,409	
Marble.....		87,552	
Oil, olive, gallons.....	10,464	9,225	
Paintings.....		15,840	
Soap, lbs.....	121,806	10,245	
Wine, gallons.....	8,297	4,273	
Wood manufactures.....		1,226	
Miscellaneous.....		2,002	
			988,653
NETHERLANDS.			
<i>Free of duty:—</i>			
Chemicals.....		1,597	
Madder, lbs.....	36,300	2,516	
Miscellaneous.....		430	
Total free of duty.....		4,543	

FOREIGN IMPORTS—CONTINUED.

ARTICLES.	Quantity.	Value.	Totals.
NETHERLANDS—CONTINUED.			
<i>Subject to duty:—</i>			
Iron, pig, lbs.....	3, 246, 206	\$40, 500	
Clay and clay pipes.....		2, 883	
Spirits, gallons.....	26, 755	12, 122	
Wine, gallons.....	1, 883	1, 216	
Zinc, in blocks, lbs.....	172, 063	9, 634	
Miscellaneous.....		1, 847	
			\$72, 385
DUTCH WEST INDIES.			
<i>Free of duty:—</i>			
Chemicals.....		2, 819	
Guano, tons.....	1, 090	9, 878	
Cocoanuts.....		684	
Miscellaneous.....		147	
Total free of duty.....		13, 528	
<i>Subject to duty:—</i>			
Metals, old.....		1, 154	
Salt, lbs.....	1, 515, 360	1, 645	
Miscellaneous.....		45	
			16, 372
PERU.			
<i>Free of duty:—</i>			
Soda, nitrate of, lbs.....	950, 155	19, 438	19, 438
PORTUGAL.			
<i>Free of duty:—</i>			
Argols.....		320	
Cork bark.....		41, 763	
Total free of duty.....		42, 083	
<i>Subject to duty:—</i>			
Fruits.....		1, 303	
Salt, lbs.....	3, 652, 507	3, 381	
Wine, gallons.....	960	1, 205	
Miscellaneous.....		74	
			48, 046
SPAIN.			
<i>Free of duty:—</i>			
Seeds.....		1, 434	
<i>Subject to duty:—</i>			
Fruits.....		160, 174	
Iron ore.....		7, 378	
Olive oil, gallons.....	9, 985	7, 071	
Miscellaneous.....		109	
			176, 166
CUBA.			
<i>Free of duty:—</i>			
Bones.....		2, 597	
Cocoanuts.....		11, 426	
Guano, tons.....	250	1, 409	
Hair, unmanufactured.....		962	
Metals, old.....		2, 289	
Paper material.....		2, 351	
Miscellaneous.....		854	
Total free of duty.....		21, 888	
<i>Subject to duty:—</i>			
Brass.....		7, 988	
Copper, lbs.....	46, 532	7, 958	
Fruits.....		41, 724	
Honey, gallons.....	5, 015	4, 257	

FOREIGN IMPORTS—CONTINUED.

ARTICLES.	Quantity.	Value.	Totals.
CUBA—CONTINUED.			
Iron.....		\$3,397	
Metals.....		4,543	
Spices, lbs.....	11,812	6,213	
Sugar, lbs.....	68,782,347	2,751,671	
Molasses, gallons.....	14,417,264	3,162,461	
Melada, lbs.....	1,863,222	33,284	
Tobacco, leaf, lbs.....	31,226	10,895	
Segars, lbs.....	13,507	54,045	
Miscellaneous.....		1,127	
			\$6,111,401
PORTO RICO.			
<i>Free of duty:—</i>			
Chemicals.....		41	
<i>Subject to duty:—</i>			
Fruits.....		1,496	
Sugar, lbs.....	5,851,692	227,460	
Molasses, lbs.....	217,758	63,728	
			292,725
SWEDEN.			
<i>Subject to duty:—</i>			
Iron—bar, lbs.....	224,000	5,679	
Old, tons.....	106	6,344	
Manufactured.....		11,326	
			23,349
UNITED STATES OF COLOMBIA.			
<i>Free of duty:—</i>			
Coccanuts.....		25,144	25,144
VENEZUELA.			
<i>Free of duty:—</i>			
Coccanuts.....		1,004	
Coffee, lbs.....	3,177,830	584,523	
Cotton, unmanufactured, lbs.....	249,016	30,688	
Gold coin.....		78,310	
Hides.....		5,983	
Indigo, lbs.....	1,950	1,836	
Total free of duty.....		702,344	
<i>Subject to duty:—</i>			
Sugar, lbs.....	150,788	5,646	
Melada, lbs.....	39,040	874	
Miscellaneous.....		570	
			709,434
BOLIVIA.			
<i>Free of duty:—</i>			
Soda, Nitrate of, lbs.....	2,686,465	67,536	67,536
Total.....			23,457,344

*SUMMARY statement of articles imported direct from foreign countries into
the port of Philadelphia during the year 1875:*

ARTICLES.	Quantity.	Value.
<i>Commodities free of duty:—</i>		
Antiquities.....		\$1, 876
Argols, lbs.....	495, 951	78, 393
Articles of the United States.....		7, 964
Bark—Medicinal, lbs.....	80, 894	47, 335
Cork.....		41, 763
Bolting cloths.....		868
Bones.....		2, 597
Books.....		24, 158
Chalk.....		7, 962
Chemicals.....		225, 442
Chloride of lime, lbs.....	8, 272, 001	183, 517
Cliffstone.....		4, 710
Cochineal, lbs.....	32, 244	16, 182
Cocoanuts.....		39, 779
Coffee, lbs.....	3, 357, 889	627, 443
Cotton, raw, lbs.....	249, 168	30, 713
Dyewoods, in sticks, cwt.....	105, 808	111, 028
Fish, fresh.....		3, 420
Gold and silver coin.....		78, 459
Guano, tons.....	1, 740	15, 387
Gums, lbs.....	421, 133	43, 159
Gypsum, tons.....	11, 333	13, 055
Hair, unmanufactured.....		3, 032
Hides and skins.....		337, 203
Household effects.....		3, 901
Indigo, lbs.....	38, 353	34, 715
Instruments, philosophical.....		3, 209
Ivory.....		4, 293
Kryolite.....		101, 231
Lime.....		1, 717
Machinery.....		2, 648
Madder, lbs.....	140, 107	8, 172
Manure.....		6, 936
Metals, old.....		4, 250
Mineralogical specimens.....		1, 551
Oils, fixed and essential.....		13, 978
Paintings.....		7, 638
Platinum.....		19, 884
Paper material.....		202, 672
Plumbago.....		2, 879
Quicksilver, lbs.....	193	16, 088
Seeds.....		11, 739
Sheathing felts.....		1, 140
Shells.....		39, 018
Silk, raw, lbs.....	4, 289	28, 527
Soda, nitrate of, lbs.....	3, 636, 620	86, 974
Sulphur, tons.....	6, 761	212, 887
Tea, lbs.....	23, 609	7, 387
Tin, bars, cwt.....	2, 836	67, 292
Wood, unmanufactured.....		5, 820
Miscellaneous.....		430
Total free of duty.....		2, 812, 430
<i>Commodities subject to duty:</i>		
Beer and ale, gallons.....	22, 926	21, 773
Books.....		111, 223
Blacking.....		4, 019
Brass manufactures.....		19, 065
Breadstuffs.....		30, 952
Bricks and tiles.....		4, 579
Buttons.....		35, 459
Cement.....		9, 925

FOREIGN IMPORTS—CONTINUED.

ARTICLES.	Quantity.	Value.
Chemicals.....		\$361,853
Clay and clay pipes.....		45,806
Clocks.....		27,166
Coal, bituminous, tons.....	3,063	9,155
Copper, and manufactures of.....		34,136
Corks.....		16,224
Cotton manufactures.....		1,122,292
Earthen and stone ware.....		351,199
Fancy goods.....		109,136
Fish, sardines.....		1,395
Flax manufactures.....		831,268
Fruits.....		805,146
Furs.....		73,009
Glass and glassware.....		160,570
Grape sugar.....		2,396
Hair, human and other.....		23,878
Hemp and manufactures of.....		15,949
Honey, gallons.....	5,021	4,267
Hops, lbs.....	38,187	18,297
India rubber manufactures.....		5,794
Ink.....		10,472
Instruments, philosophical.....		1,627
Iron—Ore.....		20,673
Pig, lbs.....	43,066,510	582,111
Bar, lbs.....	1,146,056	30,904
Old, tons.....	536	18,289
Hardware.....		11,220
Anchors and chains, lbs.....	433,482	23,552
Machinery.....		70,147
Muskets and rifles.....		38,828
Steel ingots.....		128,270
Other manufactures.....		452,010
Jewelry.....		14,283
Jute manufactures.....		17,325
Kiserit.....		3,951
Lead, in bars, lbs.....	3,928,281	192,842
Leather and manufactures of.....		231,096
Marble and stone.....		116,620
Metals.....		21,667
Musical instruments.....		21,945
Oils—Olive, gallons.....	25,366	26,418
Other.....		10,455
Opium, lbs.....	109,867	389,965
Paintings.....		66,510
Paints.....		38,791
Paper manufactures.....		82,362
Perfumery.....		10,438
Pickles.....		11,647
Plaster, calcined.....		12,471
Potatoes, bushels.....	26,566	17,382
Precious stones.....		79,293
Provisions.....		21,052
Salt, lbs.....	82,883,541	183,216
Seeds.....		23,852
Silk manufactures.....		563,569
Soap, lbs.....	164,665	16,083
Soda—Bicarbonate, lbs.....	68,508	1,781
Carbonate, lbs.....	33,959,951	639,993
Caustic, lbs.....	3,258,199	117,511
Spices, lbs.....	60,352	20,053
Sponges.....		2,807
Starch sirup.....		5,481
Straw manufactures.....		8,230
Sugar, brown, lbs.....	83,190,245	3,289,940
Molasses, gallons.....	15,257,619	3,371,839
Melado, lbs.....	1,905,802	34,324
Confectionery.....		1,057

FOREIGN IMPORTS—CONTINUED.

ARTICLES.	Quantity.	Value.
Tin, in plates, cwt.	299,991	\$1,805,229
Tin manufactures		9,336
Tobacco—Leaf, lbs.	33,000	11,424
Segars, lbs.	13,511	54,094
Manufactures.		927
Trees and plants.		6,693
Vegetables		18,906
Watches		17,396
Spirits, gallons.	85,295	87,585
Wine, gallons.	326,261	230,126
Wood manufactures.		62,890
Wool, unmanufactured, lbs.	1,891,010	400,756
Wool manufactures.		2,575,986
Zinc, in blocks, lbs.	172,063	9,654
Zinc, in sheets, lbs.	224,868	13,750
Miscellaneous		8,539
Total.		23,457,334

IMMEDIATE TRANSPORTATION *from the port of Philadelphia, to the following interior ports, under the act of July 14, 1870, during the year 1875 :*

Interior ports.	Value.
Baltimore, Md.	\$2,581
Chicago, Ill.	1,069,277
Cincinnati, O.	5,207
Louisville, Ky.	557
Milwaukee, Wis.	8,326
New York	9,689
Pittsburg, Pa.	20,988
St. Louis, Mo.	7,280
Total	1,123,975

STATEMENT OF FOREIGN MERCHANDISE imported into New York, and transported thence without appraisement to the port of Philadelphia, under the provisions of the act of July 14, 1870, during the year 1875 :

Articles.	Value.	Articles.	Value.
<i>Commodities free of duty :</i>		Hair manufactures.....	\$1,363
Chemicals.....	\$7,359	India rubber manufactures....	2,384
Chloride of lime.....	4,169	Iron manufactures.....	4,342
Household effects.....	573	Jewelry.....	1,640
Platinum.....	1,188	Leather and manufactures of..	20,035
Gutstrings.....	1,365	Metals.....	1,293
Miscellaneous.....	414	Musical instruments.....	2,056
Total.....	15,068	Oils.....	5,417
<i>Commodities subject to duty :</i>		Opium.....	47,438
Books.....	\$4,959	Paintings.....	1,028
Brass.....	864	Paper manufactures.....	1,967
Buttons.....	47,627	Precious stones.....	2,538
Chemicals.....	9,882	Silk manufactures.....	81,004
Clocks.....	1,341	Tobacco, leaf.....	3,250
Cotton manufactures.....	113,857	Tobacco, segars.....	17,423
Earthen and stoneware.....	3,867	Watches.....	9,167
Fancy goods.....	22,393	Wood manufactures.....	1,657
Flax manufactures.....	13,306	Wool manufactures.....	91,279
Furs.....	13,399	Miscellaneous.....	1,247
Glass manufactures.....	9,589	Total.....	553,680

RECAPITULATION of the imports from foreign countries into the port of Philadelphia, during the year 1875.

COUNTRIES.	In American vessels.	In foreign vessels.	Totals.
Belgium.....	\$9,750	\$1,257,183	\$1,266,933
Brazil.....	29,354	72,007	101,361
Greenland.....		101,431	101,431
France.....		69,707	69,707
French West Indies.....	80,420	73,243	153,663
French Possessions in Africa.....		13,311	13,311
Germany.....	57,734	383,048	440,782
England.....	8,532,477	3,786,189	12,318,666
Scotland.....	112		112
Nova Scotia.....	61,160	21,786	82,946
British West Indies.....	220,117	117,712	337,829
British Guiana.....		10,976	10,976
Hayti.....	8,968		8,968
Italy.....	225,493	763,160	988,653
Netherlands.....	32,892	39,493	72,385
Dutch West Indies.....	16,100	272	16,372
Peru.....	19,438		19,438
Portugal.....	12,277	35,769	48,046
Spain.....	168,788	7,378	176,166
Cuba.....	4,901,741	1,209,660	6,111,401
Porto Rica.....	169,966	122,759	292,725
Sweden.....		23,349	23,349
U. S. of Colombia.....	24,115	1,029	25,144
Venezuela.....	243,289	466,145	709,434
Bolivia.....	36,560	30,976	67,536
Imported via New York.....			553,680
Total imports for 1875.....	14,850,751	8,606,583	23,457,334
Total imports for 1874.....	15,125,548	9,311,932	25,004,784

DUTIES RECEIVED.

Amount of duties received at the Custom House of Philadelphia, from January 1 to December 31, 1875.

MONTHS.	1875.	1874.
January.....	\$424,749 20	\$652,404 51
February.....	780,629 23	751,759 77
March.....	987,295 45	826,801 00
April.....	759,621 04	746,394 18
May.....	761,785 65	715,389 04
June.....	702,974 73	830,601 55
July.....	707,888 99	725,572 00
August.....	650,388 96	694,170 74
September.....	726,057 61	861,926 61
October.....	651,921 85	632,487 14
November.....	607,789 67	485,344 42
December.....	403,466 33	469,808 38
Total.....	8,164,518 71	8,392,159 42

THE FOREIGN MAIL SERVICE OF PHILADELPHIA.

Statement of number of letters and weight of printed matter received from foreign countries during the year 1875.

COUNTRIES.	Number of letters.	Weight of printed matter in pounds.
Great Britain.....	371,696	51,844
Germany.....	61,200	1,812
Other foreign countries for which Philadelphia is not an exchange office.....	198,646	1,950
Total in 1875.....	631,542	55,606
Total in 1874.....	521,977	45,312

The following is a statement of letters and printed matter sent to foreign countries during 1875.

COUNTRIES.	Number of letters.	Weight of printed matter in pounds.
Great Britain.....	412,060	42,744
Germany.....	101,466	5,611
Other foreign countries for which Philadelphia is not an exchange office.....	263,835	15,866
Total in 1875.....	780,361	64,221
Total in 1874.....	574,972	40,028

IMMIGRATION.

With lines of ocean steamships unequalled in strength, elegance, safety, comfort and speed, and connecting with railroads offering like substantial advantages, the attractiveness of Philadelphia as a port of debarkation and embarkation is not surpassed on this continent, and in face of a large decrease in European emigration to America during 1875, the amount of passenger travel *via* Philadelphia exceeds that of any previous year. The American Steamship company and the Red Star Line have furnished the following statistics of the number of passengers carried on their steamers during the past twelve months.

AMERICAN LINE.

Cabin, west-bound.....	953		
Steerage....do.....	7,047		
		8,000	
Cabin, east-bound.....	880		
Steerage...do.....	5,010		
		5,890	
			13,890

RED STAR LINE.

Cabin, west-bound.....	441		
Steerage....do.....	4,045		
		4,486	
Cabin, east-bound.....	347		
Steerage...do.....	2,265		
		2,612	
			7,098

Total number of passengers carried by the two lines for 1875, 20,988

THE FOREIGN EXPORT TRADE OF PHILADELPHIA DURING 1875.

Favored by geographical situation, and with natural resources which have been largely developed by engineering skill, Philadelphia has achieved an importance as an outlet for the foreign trade of the country as gratifying as it is deserved. With her extensive water front, girdled with grain elevators, warehouses, shipyards and commodious wharves, and these in turn directly connected by rail with the Western grain fields, the cotton and tobacco regions of the South and the petroleum and coal producing territory of our own State, Philadelphia offers a channel for the export of these staples unequalled on the Atlantic coast, and accompanying statistics will tell far better than words to what extent Philadelphia has made use of her advantages during the past year.

EXPORTS FROM PHILADELPHIA

By articles and countries of commodities, the growth, produce and manufacture of the United States to foreign countries during the year 1875.

ARTICLES.	Quantity.	Value.	Totals.
AUSTRIA.			
Petroleum, refined, gallons	1,715,586	\$224,108	\$224,108
BELGIUM.			
Agricultural implements		1,895	
Bark		5,595	
Indian corn, bushels	111,000	93,340	
Wheat, bushels	620,592	\$15,346	
Wheat flour, bbls	602	3,770	
Cotton, lbs.	1,678,061	248,750	
Cotton manufactures		18,997	
Drugs and chemicals		38,877	
Fruits		2,970	
Hair, unmanufactured		21,425	
Hides		180,788	
Iron manufactures		22,876	
Leather and manufacturers of		597,961	
Petroleum, crude, gallons	566,150	52,814	
Do..... refined, gallons	17,559,279	2,250,238	
Naphtha and benzine	482,874	43,760	
Paintings		1,075	
Provisions		441,030	
Seeds		2,175	
Sewing machines		20,275	
Starch, lbs.	196,021	10,027	
Tallow, lbs.	1,101,440	98,204	
Tobacco, leaf, lbs.	2,950,241	290,132	
Tobacco manufactures		1,091	
Wax, lbs.	5,000	1,000	
Wood, cooperage		15,565	
Other manufactures		17,296	
Miscellaneous		27,944	5,325,216
BRAZIL.			
Flour, bbls	2,860	18,435	
Coal, tons	2,100	9,660	
Iron manufactures		85,059	
Boards		1,185	
Miscellaneous		978	115,317
CHINA.			
Petroleum, refined, gallons	218,500	37,145	37,145
DENMARK.			
Petroleum, refined, gallons	1,580,028	217,765	217,765
DANISH WEST INDIES.			
Coal, tons	942	4,403	4,403
GREENLAND.			
Cooperage		100	100
FRANCE.			
Petroleum, crude, gallons	3,990,346	360,536	
Naphtha and benzine, gallons	1,479,344	136,779	497,315
FRENCH WEST INDIES.			
Indian corn, bushels	2,260	2,061	
Flour, bbls.	6,065	36,382	
Other breadstuffs		996	
Provisions		19,110	
Tobacco, leaf, lbs.	10,705	1,711	

EXPORTS FROM PHILADELPHIA—CONTINUED.

ARTICLES.	Quantity.	Value.	Totals.
FRENCH WEST INDIES—CONTINUED.			
Boards.....		\$2,843	
Cooperage.....		2,542	
Miscellaneous.....		1,676	
			67,321
FRENCH POSSESSIONS IN AFRICA.			
Petroleum, refined, gallons.....	264,000	50,160	
			50,160
GERMANY.			
Chemicals.....		1,300	
Petroleum, crude, gallons.....	1,917,525	176,363	
Do..... refined, gallons.....	20,022,337	2,517,925	
Naphtha and benzine, gallons.....	529,896	47,195	
			2,742,783
ENGLAND.			
Agricultural implements.....		54,830	
Bark.....		17,130	
Boneblack, lbs.....	29,032	1,075	
Books.....		1,753	
Bread and breadstuffs—Indian corn, bushels.....	1,269,326	1,036,514	
Wheat, bushels.....	818,139	1,053,840	
Wheat flour, bbls.....	15,661	95,727	
Others.....		1,130	
Cooperage.....	390	2,000	
Cotton, unmanufactured, lbs.....	11,873,268	1,793,536	
Cotton manufacturers.....		41,526	
Dentists' materials.....		22,205	
Drugs.....		72,610	
Emery rock.....		3,500	
Fruits.....		30,053	
Furs.....		2,000	
Hair, unmanufactured.....		27,200	
Hides.....		197,160	
Iron, manufactures of.....		58,838	
Leather and manufactures.....		496,365	
Musical instruments.....		1,950	
Nickle.....		45,400	
Oilcake, lbs.....	11,406,173	259,961	
Oils—Petroleum, refined, gallons.....	2,401,307	307,866	
Residuum, lbs.....	3,504	9,528	
Lard, gallons.....	18,845	19,557	
Other.....		2,150	
Paintings.....		3,075	
Provisions.....		5,676,345	
Rags, lbs.....	53,638	6,311	
Seeds.....		6,006	
Sewing machines.....		21,202	
Sugar, brown, lbs.....	327,082	28,069	
Molasses, gallons.....	1,227,602	268,522	
Tallow, lbs.....	7,670,437	669,187	
Tobacco, leaf, lbs.....	3,639,707	347,063	
Tobacco manufactures.....		3,390	
Wax, lbs.....	9,793	1,413	
Wearing apparel.....		1,800	
Wood—Cooperage.....		4,110	
Manufactures.....		22,537	
Wool manufactures.....		3,156	
Miscellaneous.....		3,121	
			12,720,711
SCOTLAND.			
Wheat, bushels.....	52,976	66,421	
Oilcake, lbs.....	920,728	21,000	
Petroleum, refined, gallons.....	11,485	1,593	
Residuum, bbls.....	5,613	16,388	
Molasses, gallons.....	104,347	21,667	
			127,069

EXPORTS FROM PHILADELPHIA—CONTINUED.

ARTICLES.	Quantity.	Value.	Totals.
IRELAND.			
Indian corn, bushels.....	2,911,538	\$2,476,081	.....
Wheat, bushels.....	1,721,461	2,211,267	.....
Wheat flour, bbls.....	7,337	41,633	.....
Manures.....	.....	54,242	.....
Oilcake, lbs.....	2,477,783	55,679	.....
Petroleum, refined, gallons.....	949,795	103,795	.....
Molasses, gallons.....	67,988	19,035	.....
Miscellaneous.....	.....	285	.....
			\$4,972,018
GIBRALTAR.			
Petroleum, refined, gallons.....	874,778	.....	121,831
NOVA SCOTIA.			
Indian corn, bushels.....	9,870	8,183	.....
Indian meal, bbls.....	250	1,038	.....
Wheat flour, bbls.....	250	1,327	.....
Coal, tons.....	10,645	53,088	.....
Drugs.....	.....	646	.....
Iron manufactures.....	.....	4,725	.....
Miscellaneous.....	.....	392	.....
			69,429
NEWFOUNDLAND.			
Wheat flour, bbls.....	1,381	7,596	.....
Provisions.....	.....	3,306	.....
Tobacco, manufactured.....	.....	502	.....
			11,494
BRITISH WEST INDIES.			
Bread and biscuits, bbls.....	790,261	27,063	.....
Indian corn, bushels.....	53,623	49,081	.....
Indian meal, bbls.....	24,692	101,884	.....
Oats, bushels.....	32,193	20,943	.....
Wheat flour, bbls.....	74,803	427,080	.....
Other breadstuffs.....	.....	3,788	.....
Candles, lbs.....	7,765	1,098	.....
Carriages and carts.....	.....	1,187	.....
Coal, tons.....	141	897	.....
Drugs.....	.....	3,928	.....
Fruits.....	.....	327	.....
Iron manufactures.....	.....	1,239	.....
Leather manufactures.....	.....	160	.....
Oilcake, lbs.....	2,733,780	64,859	.....
Petroleum, refined, gallons.....	124,505	22,050	.....
Oils, other.....	.....	1,345	.....
Perfumery.....	.....	4,615	.....
Provisions.....	.....	122,701	.....
Soap, lbs.....	92,870	5,484	.....
Sugar, refined, lbs.....	49,853	5,611	.....
Tallow, lbs.....	7,500	1,050	.....
Tobacco leaf, lbs.....	350,668	59,346	.....
Tobacco, manufactured.....	.....	4,495	.....
Wood—Boards.....	.....	2,108	.....
Cooperage.....	.....	19,468	.....
Other manufactures.....	.....	5,522	.....
Miscellaneous.....	.....	5,346	.....
			964,165
BRITISH GUIANA.			
Wheat flour, bbls.....	1,215	6,900	.....
Other breadstuffs.....	.....	788	.....
Leather.....	.....	1,136	.....
Provisions.....	.....	3,442	.....
Soap, lbs.....	19,264	1,156	.....
Tobacco, leaf.....	12,450	2,241	.....
Cooperage.....	.....	672	.....
Miscellaneous.....	.....	55	.....
			16,390

EXPORTS FROM PHILADELPHIA—CONTINUED.

ARTICLES.	Quantity.	Value.	Totals.
ITALY.			
Petroleum, refined, gallons.....	2,747,425	\$381,547	.....
Tallow, lbs.....	612,740	55,794	.....
Miscellaneous.....		90	.....
			\$437,431
JAPAN.			
Petroleum, refined, gallons.....	390,000	72,350	72,350
MEXICO.			
Coal, tons.....	2,500	11,460	11,460
NETHERLANDS.			
Petroleum, refined, gallons.....	3,397,519	419,847	419,847
DUTCH WEST INDIES.			
Indian corn, bushels.....	1,150	1,087	.....
Indian cornmeal, bbls.....	935	3,970	.....
Rye flour, bbls.....	287	1,592	.....
Wheat flour, bbls.....	1,834	11,631	.....
Other breadstuffs.....		353	.....
Cotton manufactures.....		1,257	.....
Iron manufactures.....		566	.....
Provisions.....		2,718	.....
Tobacco, leaf, lbs.....	5,990	1,095	.....
Wood manufactures.....		946	.....
Miscellaneous.....		2,957	.....
			28,172
PORTUGAL.			
Wheat, bushels.....	199,263	265,999	.....
Wheat flour, bbls.....	2,820	15,141	.....
Rosin, bbls.....	750	3,599	.....
Petroleum, refined, gallons.....	272,737	32,897	.....
Cooperage.....		1,863	.....
			219,499
RUSSIA.			
Petroleum, refined, gallons.....	879,846	102,824	102,824
SANDWICH ISLANDS.			
Coal, tons.....	2,062	11,633	11,633
SPAIN.			
Indian corn, bushels.....	23,034	16,846	.....
Petroleum, refined, gallons.....	479,501	60,829	.....
Miscellaneous.....		54	.....
			77,729
CUBA.			
Agricultural implements.....		20,977	.....
Boneblack, lbs.....	195,431	7,287	.....
Bread and biscuits, lbs.....	12,421	1,400	.....
Indian corn, bushels.....	5,800	5,650	.....
Wheat flour, bbls.....	1,403	8,713	.....
Other breadstuffs.....		1,659	.....
Bricks and tiles.....		3,320	.....
Brooms.....		1,808	.....
Carriages.....		725	.....
Railroad cars.....		9,775	.....
Coal, tons.....	19,829	97,708	.....
Cordage, lbs.....	23,546	2,722	.....
Cotton manufactures.....		750	.....
Drugs and chemicals.....		9,085	.....
Earthen and stoneware.....		1,144	.....
Fruits.....		914	.....
Gas fixtures.....		4,908	.....
Grease, lbs.....	138,305	11,429	.....
Hay, tons.....	119	2,786	.....
Iron manufactures.....		227,259	.....
Leather manufactures.....		880	.....

EXPORTS FROM PHILADELPHIA—CONTINUED.

ARTICLES.	Quantity.	Value.	Totals,
CUBA—CONTINUED.			
Petroleum, crude, gallons.....	23,824	\$2,018	.....
Do..... refined, gallons.....	7,310	1,384	.....
Oils, other.....	.....	1,059	.....
Paper manufactures.....	.....	2,623	.....
Printing material.....	.....	1,011	.....
Provisions.....	.....	28,616	.....
Sewing machines.....	.....	13,022	.....
Tallow, lbs.....	14,008	1,150	.....
Boards.....	.....	74,930	.....
Cooperage.....	.....	631,855	.....
Wood manufactures.....	.....	30,957	.....
Miscellaneous.....	.....	3,790	.....
			\$1,213,314
PORTO RICO.			
Indian cornmeal, bbls.....	300	1,320	.....
Wheat flour, bbls.....	2,926	17,756	.....
Candles, lbs.....	11,040	1,236	.....
Provisions.....	.....	9,847	.....
Wood—Boards.....	.....	7,908	.....
Cooperage.....	.....	29,972	.....
Miscellaneous.....	.....	1,103	.....
			60,142
SWEDEN.			
Petroleum, refined, gallons.....	806,253	101,976	101,976
TURKEY, AFRICA.			
Petroleum, refined, gallons.....	373,080	62,570	62,570
UNITED STATES OF COLOMBIA.			
Breadstuffs.....	.....	1,366	.....
Coal, tons.....	16,426	70,087	.....
Cotton manufactures.....	.....	1,209	.....
Fancy goods.....	.....	1,406	.....
Iron manufactures.....	.....	2,321	.....
Leather manufactures.....	.....	1,051	.....
Provisions.....	.....	1,684	.....
Wearing apparel.....	.....	922	.....
Woods—Boards.....	.....	1,808	.....
Other manufactures.....	.....	827	.....
Miscellaneous.....	.....	2,315	.....
			84,996
VENEZUELA.			
Animals, living.....	.....	3,513	.....
Indian corn, bushels.....	6,018	5,757	.....
Rye flour, bbls.....	282	1,220	.....
Wheat flour, bbls.....	40,361	241,768	.....
Other breadstuffs.....	.....	1,922	.....
Candles, lbs.....	27,641	3,731	.....
Carriages and carts.....	.....	9,819	.....
Cordage, lbs.....	177,703	19,406	.....
Drugs and chemicals.....	.....	19,333	.....
Gas fixtures.....	.....	1,614	.....
Gold coin.....	.....	75,000	.....
Iron manufactures.....	.....	30,602	.....
Marble manufactures.....	.....	5,607	.....
Rosin, bbls.....	805	3,309	.....
Ordnance stores.....	.....	32,964	.....
Petroleum manufactures, gallons.....	30,377	5,483	.....
Printing material.....	.....	1,381	.....
Provisions.....	.....	41,107	.....
Sugar, manufactured, lbs.....	51,842	6,000	.....
Tallow, lbs.....	1,049,533	108,436	.....
Tobacco leaf, lbs.....	8,058	2,791	.....
Wood—Boards.....	.....	7,214	.....
Other manufactures.....	.....	3,855	.....
Miscellaneous.....	.....	16,243	.....
			648,074
Total.....	.....	.....	31,936,727

SUMMARY STATEMENT OF COMMODITIES.

ARTICLES.	Quantity.	Value.
Agricultural implements.....		\$65,401
Animals, living.....		3,658
Bark for tanning.....		22,645
Boneblack, lbs.....	225,113	8,362
Books.....		2,396
Bread and breadstuffs—Bread and biscuits, lbs.....	830,001	29,898
Indian corn, bushels.....	4,601,586	3,695,195
Indian corn meal, barrels.....	26,367	108,956
Oats, bushels.....	33,800	22,104
Rye flour, barrels.....	543	2,917
Wheat, bushels.....	3,302,054	4,412,876
Wheat flour, barrels.....	160,748	943,107
Other breadstuffs.....		7,918
Bricks and tiles.....		3,398
Bronze, manufactures.....		30,000
Brooms.....		1,812
Candles, lbs.....	48,646	6,363
Carriages and carts.....		11,181
Railroad cars.....		10,320
Coal, tons.....	53,735	909,005
Copper ore, cwt.....	399	2,000
Cordage, lbs.....	204,474	24,509
Cotton, manufactured, lbs.....	13,551,977	2,022,286
Cotton manufactures.....		61,070
Dentists' material.....		22,830
Drugs and chemicals.....		187,048
Earthen and stoneware.....		1,480
Emery rock.....		3,000
Fancy articles.....		1,600
Fruits.....		35,066
Furs.....		2,000
Gas fixtures.....		6,597
Gold and silver coin.....		102,837
Grease, lbs.....	145,748	11,850
Hair, unmanufactured.....		48,625
Hay, tons.....	146	3,456
Hemp manufactures.....		1,309
Hides.....		377,938
Iron—railroad bars, cwt.....	5,080	17,151
Castings.....		1,575
Car wheels.....		31,115
Steam engines.....		17,150
Machinery.....		183,873
Nails, lbs.....	281,800	11,802
Other manufactures.....		122,999
Leather and manufactures of.....		1,074,354
Manures.....		54,632
Marble and stone manufactures.....		6,585
Musical instruments.....		2,165
Naval stores—rosin and tar, barrels.....	1,834	7,140
Nickel.....		45,400
Oilcake, lbs.....	17,556,214	402,376
Oils—Petroleum, crude, gallons.....	6,497,845	591,731
Petroleum, refined, gallons.....	55,112,541	7,107,749
Naptha and benzine, gallons.....	2,494,114	227,919
Residuum, barrels.....	9,127	25,956
Lard, gallons.....	20,537	21,372
Other.....		3,474
Ordnance stores.....		32,975
Paintings and engravings.....		4,155
Paper and stationery.....		3,881
Perfumery.....		4,782
Printing material.....		2,392
Provisions—Bacon and hams, lbs.....	22,813,666	2,756,000
Beef, lbs.....	12,473,786	1,230,188
Butter, lbs.....	163,678	25,710

SUMMARY STATEMENT OF COMMODITIES—CONTINUED.

ARTICLES.	Quantity.	Value.
Provisions—Cheese, lbs.....	2, 440, 530	\$297, 997
Fish.....		10, 245
Lard, lbs.....	14, 056, 634	1, 924, 462
Pork, lbs.....	1, 214, 545	115, 957
Vegetables.....		15, 876
Other.....		4, 943
Rags, lbs.....	52, 638	6, 311
Seeds.....		8, 625
Sewing machines.....		54, 981
Soap, lbs.....	144, 532	8, 144
Starch, lbs.....	191, 320	10, 602
Sugar, brown, lbs.....	327, 082	28, 069
Sugar, refined, lbs.....	103, 904	11, 848
Molasses, gallons.....	4, 399, 937	309, 225
Tallow, lbs.....	10, 455, 657	933, 821
Tobacco, leaf, lbs.....	7, 004, 819	704, 379
Tobacco, manufactures.....		10, 239
Wax, lbs.....	14, 793	2, 413
Wearing apparel.....		5, 585
Wood—Boards, lbs.....	5, 268	101, 631
Cooperage.....		679, 274
Other manufactures.....		52, 602
Wool, manufactures.....		3, 381
Miscellaneous.....		28, 604
Total.....		31, 936, 727

DETAILED STATEMENT of the exports of breadstuffs and provisions,

Including bread and biscuits, Indian corn, Indian corn meal, oats, rye, rye flour, wheat, wheat flour and other grains; and provisions, including bacon, hams, beef, butter, cheese, fish, lard, meats, oysters, pork and vegetables, from the port of Philadelphia to foreign countries, during the year 1875.

COUNTRIES.	Breadstuffs	Provisions.
Belgium.....	\$912, 456	\$441, 030
Brazil.....	18, 768	270
French West Indies.....	39, 440	19, 110
England.....	2, 187, 211	5, 676, 345
Scotland.....	66, 421	
Ireland.....	4, 723, 981	
Nova Scotia.....	10, 578	382
Newfoundland.....	7, 596	3, 306
British West Indies.....	629, 840	122, 701
British Guiana.....	7, 688	3, 412
Dutch West Indies.....	18, 633	2, 718
Portugal.....	181, 140	
Spain.....	16, 846	
Cuba.....	26, 323	28, 616
Porto Rico.....	19, 426	9, 847
U. S. of Colombia.....	1, 366	1, 684
Venezuela.....	247, 647	41, 117
Total.....	9, 120, 866	6, 350, 588
Total, 1874.....	8, 159, 371	3, 372, 719

DETAILED STATEMENT of the export of petroleum and its products.

COUNTRIES.	CRUDE.		REFINED.		NAPHTHA AND BENZINE.	
	Gallons.	Value.	Gallons.	Value.	Gallons.	Value.
Austria			1,715,586	\$224,108		
Belgium	566,150	\$52,814	17,559,279	2,250,238	482,874	\$43,760
China			218,500	37,145		
Denmark			1,580,928	217,765		
France	3,990,346	360,536			1,470,344	136,779
French West Indies			3,000	635	2,000	185
French Possess. in Africa			264,000	50,160		
Germany	1,917,525	176,363	20,022,337	2,517,925	529,896	47,000
England			2,001,307	307,866		
Scotland			11,485	1,593		
Ireland			949,795	113,795		
Gibraltar			874,778	121,891		
Nova Scotia			45	10		
British West Indies			124,505	22,350		
Italy			2,747,425	381,547		
Japan			390,000	72,350		
Netherlands			3,397,519	419,847		
Dutch West Indies			1,000	239		
Portugal			272,737	32,897		
Russia			879,846	102,824		
Spain			479,501	60,800		
Cuba	23,824	2,018	7,310	1,384		
Porto Rico			1,500	292		
Sweden			806,253	101,976		
Turkey in Africa			373,080	62,574		
U. S. of Colombia			608	78		
Venezuela			30,377	5,483		
Total	6,497,845	591,731	55,112,341	7,107,749	2,494,114	227,919

TOTAL EXPORTS OF PETROLEUM, NAPHTHA AND BENZINE.

	1875.		1874.	
	Gallons.	Value.	Gallons.	Value.
Refined	55,112,341	\$7,107,749	70,810,711	\$9,306,517
Crude	6,497,845	591,731	1,641,116	145,993
Naphtha and benzine	2,494,114	227,919	1,729,862	135,607
Total	64,164,300	7,927,399	74,154,689	9,048,063

RECAPITULATION OF EXPORTS.

Statement of the value of Exports to the following foreign countries:

COUNTRIES.	In American vessels.	In foreign vessels.	Totals.
Austria	\$42,987	\$181,121	\$224,108
Belgium	474,508	5,050,708	5,525,216
Brazil	84,385	30,932	115,317
China	37,145	.....	37,147
Denmark	12,000	205,765	217,765
Danish West Indies.....	4,403	.....	4,403
Greenland .....	.....	100	100
France	86,106	411,209	497,315
French West Indies.....	48,281	19,020	67,321
French Possessions in Africa.....	50,160	.....	50,160
Germany.....	245,717	2,497,066	2,742,783
England	7,907,900	4,812,721	12,720,711
Scotland	17,981	109,088	127,069
Ireland	240,123	4,729,895	4,972,018
Gibraltar	74,521	47,370	121,891
Nova Scotia.....	10,050	59,879	69,429
Newfoundland.....	.....	11,404	11,404
British West Indies.....	671,257	292,908	964,165
British Guiana.....	16,390	.....	16,390
Italy	326,025	111,406	437,431
Japan	72,350	.....	72,350
Mexico.....	11,460	.....	11,460
Netherlands	40,242	379,605	419,847
Dutch West Indies	18,998	9,174	28,172
Portugal	242,475	77,024	319,499
Russia	63,058	39,766	102,824
Sandwich Islands	11,633	.....	11,633
Spain	43,982	33,747	77,729
Cuba	1,109,043	103,271	1,213,314
Porto Rico	42,137	18,005	60,142
Sweden.....	.....	101,976	101,976
Turkey in Africa	47,000	15,570	62,570
United States of Colombia	68,506	16,490	84,996
Venezuela	366,201	281,873	648,074
Total	12,289,114	19,647,613	31,936,727
Total exports during the year 1874	10,635,652	19,243,259	29,878,911
Increase of 1875 over 1874.....	.....	.....	2,057,816

THE SHIPPING TRADE OF PHILADELPHIA.

The inquiry for a larger supply of tonnage which has naturally accompanied an increasing export business, has both necessitated and suggested a thorough revision of the scale of port charges formerly in vogue in Philadelphia, and the reduced tariff now in use, although scarcely yet known, has already been the means of considerably increasing her marine communications. The demand, however, is still in excess of the supply, but with the recent inauguration of the Philadelphia Maritime Exchange and the systematic efforts which are being made to diffuse all necessary information about the port, it is to be hoped that shippers will not long have to complain about lack of tonnage. In this connection it is interesting to

note the large number of American-owned vessels now trading out of Philadelphia to foreign ports, the clearances of American tonnage during 1875 being 500, while the British flag, which comes next on the list, is represented but by 324 vessels.

Allusion has been made to the Philadelphia Maritime Exchange. The objects of this association may be briefly stated, as follows :

While furnishing a convenient and suitable exchange for the meeting of importers, shippers, ship brokers, etc., thus facilitating their negotiations, it will at the same time bring representatives of these and other interests together for the discussion and consideration of questions affecting the commercial interests of the port of Philadelphia. It will also secure for the establishment of improvements and correction of abuses that concerted action which tends so greatly to secure permanent success and a unity of purpose which has, unfortunately, hitherto been so wanting in our city.

The latest marine reports by cable and telegraph will be constantly displayed in the rooms of the exchange, and the earliest telegraphic advices of all losses and disasters to vessels throughout the world will be found recorded as soon as known elsewhere in the United States. The association will place itself in correspondence with kindred associations in various parts of the world, and will collect and conveniently file for reference standard papers of various nations, as well as the leading editions of our domestic press.

The action of our own and foreign governments upon questions relative to interchange of commerce, shipping regulations, etc., will be carefully collected, as well as decisions of marine courts and underwriters in cases of general interest. The arrival and departure of all vessels, including steamers, bound to and from the United States, will be constantly posted, as received by telegraph, upon bulletin boards provided for the purpose. Accurate lists will be kept of all vessels bound to Philadelphia, (also to other ports of the United States,) and their dates of sailing noted ; manifests of inward and outward bound vessels will be secured from the various sources at earliest moment possible and be displayed, generally, previous to their appearance in the public prints.

Reports of all vessels inward or outward bound, passing Delaware breakwater, New Castle, Sandy Hook, Tybee, Hampton Roads, etc., will be received by wire at the Maritime Exchange.

Special attention will be paid to the Delaware breakwater, with the view of making its advantages, as a port of call for vessels seeking business, manifest to ship-owners and agents throughout this country and Europe ; thus securing an accumulation of vessels at this point, which, while they

may not be destined for this port, will yet give to Philadelphia shippers the advantage of selection from this tonnage for their needs.

The programme which the association thus laid out for themselves, has been faithfully followed, and a large number of vessels have already been added to the fleet, which after a first experience, invariably make Philadelphia its rendezvous when on this side of the Atlantic.

NATIONALITY OF VESSELS *entered into the Port of Philadelphia from foreign ports during the year 1875 :*

NATIONALITY.	Number.	Tonnage.
American	501	263,528
Austrian.....	12	7,816
Belgian.....	15	39,106
British.....	321	196,000
Danish.....	11	3,383
Dutch	4	1,524
French.....	1	109
German	75	46,495
Italian.....	55	28,046
Portuguese.....	6	2,610
Russian	15	9,087
Spanish.....	1	682
Swedish and Norwegian.....	125	53,893
Total.....	1,142	652,279
Total, 1874.....	1,008	621,641

CLEARANCES OF VESSELS *from Philadelphia for foreign ports during the year 1875 :*

NATIONALITY.	Number.	Tonnage.	Value cargo.
American.....	500	261,062	\$12,289,114
Austrian.....	14	9,034	465,787
Belgian.....	16	43,107	2,916,720
British.....	324	195,582	10,059,769
Danish.....	11	3,383	87,494
Dutch	4	1,524	57,599
French.....	1	149	6,630
German.....	76	46,468	1,832,302
Italian.....	49	24,198	1,379,775
Portuguese.....	6	2,610	101,458
Russian.....	16	9,885	498,984
Spanish.....	1	682	43,210
Swedish.....	116	54,087	2,198,155
Total.....	1,134	671,771	31,936,727
Total in 1874.....	1,105	647,965	\$29,878,911

ENTRANCES AND CLEARANCES of vessels from Philadelphia, in the coastwise trade during the year 1875.

MONTHS.	ENTERED.		CLEARED.	
	No.	Tonnage.	No.	Tonnage.
January.....	56	35,349	71	48,307
February.....	28	19,605	41	31,455
March.....	63	37,551	86	48,425
April.....	129	49,074	125	58,901
May.....	135	50,742	146	61,639
June.....	127	50,756	162	61,468
July.....	141	57,896	143	64,848
August.....	128	48,831	115	52,997
September.....	139	50,306	121	56,534
October.....	120	44,779	136	61,241
November.....	126	46,194	115	53,714
December.....	112	45,009	125	63,743
Total	1,295	536,092	1,386	663,292
Total, 1874.....	1,528	664,456	1,653	812,409

To Messrs. Peter Wright & Sons, No. 307 Walnut street, Philadelphia, the Bureau is indebted for the foregoing article in relation to the trade of the port of Philadelphia.

COMMERCE OF THE PORT OF ERIE, 1875.

IMPORTS BY LAKE.

Barley, bushels.....	492,459
Corn, bushels.....	859,053
Oats, bushels.....	187,945
Peas, bushels.....	34,507
Wheat, bushels.....	3,132,258
Flour, barrels, (320,996;) reduced to wheat, bushels.....	1,604,980
Total, grain.....	6,311,202
<hr/>	
Iron ore, tons.....	105,190
Lumber, feet.....	10,255,035
Pig iron, tons.....	250
Merchandise, sundries, pounds.....	4,766,967
Copper, pounds.....	2,507,260

EXPORTS BY LAKE.

Coal, tons.....	174,672
Railroad iron, tons....	8
Iron pipe, tons.....	339
Pig iron, tons.....	1,465
Nails, kegs.....	22,806
Merchandise, sundries, pounds.....	29,575,958
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Vessels entered and cleared at Erie custom house, in 1875...	1,255
Tonnage of the same.....	734,384
Enrolled tonnage of Erie.....	24,515

FLAX CULTURE.

EXECUTIVE CHAMBER,
HARRISBURG, August 31, 1875. }

The following article is respectfully referred to W. Hayes Grier, Esq.,
Chief of Bureau of Statistics.

By direction of the Governor.

A. WILSON NORRIS,
Private Secretary.

153 WALWORTH STREET, BROOKLYN, N. Y., }
August 25, 1875. }

SIR:—In conjunction with the venerable patriot, Peter Cooper, N. Y., I
am striving to arouse attention to the cultivation of flax, hemp and jute ;
fifty millions dollars of which (and their manufactures) are annually im-
ported by the United States.

Permit me to refer to enclosed statistics, trusting the publicity you may
give them, may prove beneficial to Pennsylvania and the whole country.

Yours respectfully,

WILSON WATSON.

I heartily endorse the above.

PETER COOPER.

To Gov. J. F. HARTRANFT, *Harrisburg, Pa.*

WHEAT *versus* FLAX.

UNITED STATES WHEAT CROP OF 1873.

	Acres, millions.	Bushels per acre.	Price per bushel.	Value per acre.	Total dollars, millions.
1. Illinois.....	21 ¹ / ₅	13.5	\$1 10	\$14 85	\$31 ² / ₅
2. California	1 ⁶ / ₁₀	13.5	1 32	17 82	28 ⁴ / ₁₀
3. Iowa.....	2 ⁶ / ₁₀	13	79	10 27	27 ⁴ / ₁₀
4. Wisconsin.....	1 ⁶ / ₅	16.5	97	16 00	25 ³ / ₁₀
5. Indiana	1 ² / ₁₀	11.2	1 22	13 66	25 ⁴ / ₁₀
6. Ohio.....	1 ⁶ / ₁₀	12	1 31	15 72	24 ³ / ₁₀
7. Pennsylvania	1 ¹ / ₁₀	14.2	1 50	21 30	23 ³ / ₁₀
Total entire U. S....	22 ² / ₁₀	12.68	1 15	14 59	325 ⁶ / ₁₀

The North-Western Flax Association, Columbus, Ohio, report, (1868,) that flax was the most profitable crop raised in Morrow county, Ohio, yielding \$27 08. Presuming flax to be as profitable in other States as in Ohio, (or almost double the entire wheat average, as above, \$14 59,) the possibility is apparent, that through flax, the product of the United States wheat acreage might have been doubled, a fact that should be noted by every live farmer in the country.

WILSON WATSON,

WHAT I KNOW ABOUT FLAX.

1. In 1873, throughout the world, there were over 3,000,000 acres in flax. Russia had 1,600,000 acres and the United States 61,204, or less than half of Ireland which had 129,432 acres.

Derry, Down and Tyrone counties in Ulster, Ireland, had 4,080 more acres in flax than the entire United States. Ireland has 21,000,000 acres land, whilst in 1870 the United States had 408,000,000, two hundred and eighteen of which were unimproved.

Flax culture should become in America what it is in Russia and Ireland, an avenue of private and public prosperity.

2. In 1870, thirty-three States in the United States raised over 27,000,000 pounds of flax, the bulk of which was sacrificed by being "deviled" into flax "moss" for upholsterer's uses in place of hair. Instead of this, had it been properly "fixed" for manufacture, the United States annual expenditure of \$25,000,000 for flax and its manufactures might have been materially reduced.

The North-Western Flax Association, Columbus, Ohio, report (1868) that flax was the most profitable crop raised in Morrow county, Ohio, yielding \$27 08, or one-half more than corn (\$19 90) and three times more than oats (\$9 00.)

The entire United States wheat crop in 1873 only averaged \$14 59, or a half more than flax as above, a fact that should be noted by every "live" farmer in the country.

3. During the past 20 years the United States imported 354 millions of flax and its manufactures, all of which could and should have been furnished by the United States.

DOMESTIC LINENS FROM DOMESTIC FLAX.

4. During the past 20 years America more than doubled its wheat exports to England, whilst Russia's decreased more than one-half. In 1874 (9 months) America sent 58 per cent. of England's entire wheat supplies, or nearly six times more than Russia, which only sent 11 per cent. America also received nearly 7 per cent. more for its wheat than Russia, amply demonstrating the superiority of

AMERICAN OVER RUSSIAN WHEAT.

5. Wheat land is best for flax. America makes no effort to secure a slice of England's flax trade, worth nearly \$100,000,000 per annum, (monopolized by Russia,) but annually buys millions of dollars worth of raw flax of Russia, and its manufactures of England.

WHEN WILL THIS SUICIDAL IMPORTATION CEASE?

America excels Russia in wheat; it could also surpass Russia, and flood the world with flax.

6. There are thousands of intelligent Irish and Germans in the United States whose skilled dormant knowledge of flax might be utilized through a flax supply association, as in Ireland. When will there be organized

THE FLAX SUPPLY ASSOCIATION OF AMERICA?

7. Manifestly the advantages from the above course would be to expand the agricultural interests, and reclaim much of the waste land of the country. It would start the idle machinery, give employment to thousands of men now unemployed, and place strikes and hard times among the things that were.

WILSON WATSON,

TABLE showing the average retail prices of provisions, groceries, and other leading articles in New York, New Jersey and Pennsylvania.

ARTICLES.	New York.			New Jersey.			Pennsylvania.			
	1867.	1869.	1874.	1867.	1869.	1874.	1867.	1869.	1874.	1875.
PROVISIONS.										
Flour, wheat, superfine.....per bbl.	\$12 50	\$7 85	\$7 50	\$14 12	\$9 66	\$8 00	\$12 68	\$7 53	\$7 00	\$6 50
Flour, wheat, extra family.....do.	11 35	7 80	9 12	13 50	9 00	10 17	12 44	7 75	7 88	7 00
Flour, rye.....do.	8 16	6 58	6 25	9 40	7 25	4 25	8 65	6 75	5 25	5 00
Corn meal.....do.	5 18	3 65	4 24	5 50	5 50	3 55	5 18	4 32	4 52	5 00
Beef, fresh, roasting pieces.....per lb.	19	19	15 ³ / ₄	23	23	20 ¹ / ₂	16	17	17	18
Beef, fresh, soup pieces.....do.	10	09	08	14	14	08 ¹ / ₂	12	12	12	14
Beef, fresh, rump steaks.....do.	21	20	15 ³ / ₄	23	22	20	17	18	17	16
Beef, corned.....do.	14	14	11	16	16	13 ¹ / ₂	13	14	14	15
Veal, fore quarters.....do.	14	13	11	17	17	15 ¹ / ₂	11	11	12 ¹ / ₂	12
Veal, hind quarters.....do.	15	16	13 ³ / ₄	22	22	19	13	13	14 ¹ / ₂	15
Veal cutlets.....do.	18	20	18	25	27	23 ¹ / ₂	19	21	18	19
Mutton, fore quarter.....do.	14	12	10 ¹ / ₂	14	13	11	12	11	13 ¹ / ₂	14
Mutton, leg.....do.	16	16	14	18	18	18	13	13	16	15
Mutton chops.....do.	16	17	16	21	20	21	15	16	16 ¹ / ₂	16
Pork, fresh.....do.	17	18	14	19	20	15	15	17	14	18
Pork, corned or salted.....do.	17	19	14	18	19	14	18	19	13 ¹ / ₂	15
Pork, bacon.....do.	20	22	14	18	19	17	17	18	14	11
Pork, hams, smoked.....do.	20	24	16 ¹ / ₂	23	23	17	23	24	16 ¹ / ₂	16
Pork, shoulders.....do.	18	19	12	20	21	13 ¹ / ₂	18	18	13	15
Pork, sausages.....do.	22	23	16 ¹ / ₂	22	22	16	20	20	16 ¹ / ₂	18
Lard.....do.	19	24	17	20	24	17	18	22	16 ¹ / ₂	15
Codfish, dry.....do.	09	09	08 ¹ / ₂	11	11	08 ¹ / ₂	10	10	08 ¹ / ₂	08
Mackerel, pickled.....do.	16	15	12	14	15	12 ¹ / ₂	13	11	12 ¹ / ₂	16
Butter.....do.	35	42	35	47	52	45 ³ / ₄	36	40	35 ³ / ₄	30
Cheese.....do.	21	20	18 ³ / ₄	26	26	19	22	21	19	18
Potatoes.....per bu.	1	60	77	1	1	1	1	69	97	45
Rice.....per lb.	13	13	11	14	12	10	14	13	12	10
Beans.....per qt.	17	12	09	13	12	11 ¹ / ₂	11	12	16 ¹ / ₂	10
Milk.....do.	08	08	07	09	10	09	09	09	08 ¹ / ₂	08
Eggs.....per doz.	25	31	24	36	39	35 ³ / ₄	26	25	30	25

TABLE OF PROVISIONS, GROCERIES, &c.—CONTINUED.

ARTICLES.	New York,			New Jersey,			Pennsylvania.			
	1867.	1869,	1874.	1867.	1869.	1874.	1867.	1869.	1874.	1875.
GROCERIES.										
Tea, Oolong, or other good black..... per lb..	\$1 26	\$1 12	\$0 99	\$1 24	\$1 53	\$0 90	\$1 50	\$1 35	\$0 91	\$0 25 to \$1 00
Coffee, Rio, green..... do.	31	29	29	33	31	25	31	28	26 ³ / ₄	25 to 35
Coffee, Rio, roasted..... do.	36	33	34 ¹ / ₂	45	38	33 ¹ / ₂	33	31	32 ³ / ₄	28
Sugar, good brown..... do.	14	15	09 ¹ / ₂	14	14	09 ¹ / ₂	16	16	09 ³ / ₄	10
Sugar, yellow C..... do.	15	16	10 ¹ / ₄	15	15	10 ¹ / ₄	17	17	11	11
Sugar, coffee B..... do.	16	17	11	16	16	11	18	17	11	11
Molasses, New Orleans..... per gal.,	1 09	1 02	80	1 04	1 04	96 ³ / ₄	1 12	1 12	97	1 00
Molasses, Porto Rico..... do.	1 00	88	77 ¹ / ₂	89	78	73 ¹ / ₂	81	77	78	80
Syrup..... do.	1 26	1 18	97	1 14	1 18	1 00	1 25	1 16	89	90
Soap, common..... per lb.	12	12	08 ¹ / ₄	11	11	07	09	08	08	08
Starch..... do.	13	13	12	15	14	13 ³ / ₄	13	13	11	09
Fuel, coal..... per ton.	7 85	8 10	7 88	7 90	8 84	6 92	4 25	4 44	5 60	5 50
Fuel, wood, hard..... per cord,	6 20	6 30	5 27	6 00	5 40	9 00	4 50	4 00	5 46	5 00
Fuel, wood, pine..... do.	4 00	4 12	4 18	7 00	6 50	9 00	2 75	2 72	4 31	4 50
Oil, coal..... per gal.,	63	46	18 ¹ / ₄	58	55	23	55	50	28 ³ / ₄	30
DOMESTIC DRY-GOODS, ETC.										
Shirtings, brown, 4-4, standard quality..... per yd.,	18	18	12 ³ / ₄	19	17	13 ³ / ₄	21	20	13 ¹ / ₂	12 ³ / ₄
Shirtings, bleached, 4-4, standard quality..... do.	24	20	15 ¹ / ₂	25	20	16 ¹ / ₂	24	24	13 ¹ / ₂	13 ¹ / ₂
Sheetings, brown, 9-8, standard quality..... do.	26	21	18 ³ / ₄	28	21	15 ¹ / ₂	32	28	17 ¹ / ₂	16
Sheetings, bleached, 9-8, standard quality..... do.	28	28	20 ¹ / ₄	32	28	16	35	34	19 ¹ / ₂	15
Cotton flannel, medium quality..... do.	30	28	21 ³ / ₄	28	25	18	26	23	19	18 ³ / ₄
Trickings, good quality..... do.	35	34	26 ¹ / ₂	44	37	25 ¹ / ₂	42	28	26	22
Prints, Merrimac..... do.	15	11	11	16	15	10 ¹ / ₂	16	15	11	10
Mousseline-de-laines..... do.	24	23	22 ¹ / ₄	27	23	19 ¹ / ₂	24	23	21	22
Satinets, medium quality..... do.	77	67	80 ¹ / ₂	1 00	65	65	91	82	58	54
Boots, men's heavy..... per pair.	4 62	4 40	4 22	4 44	5 07	4 50	5 64	5 12	4 40	4 25
HOUSE RENT.										
Four roomed tenements..... per mo.,	8 50	8 40	6 76	7 70	10 46	16 00	6 16	4 40	9 37	9 00
Six roomed tenements..... do.	11 20	11 20	10 58	11 80	14 95	20 00	9 74	9 30	12 70	11 50
BOARD.										
For men, (mechanics, &c.)..... per wk.,	4 75	4 50	4 29	4 74	4 72	5 00	5 12	4 40	4 75	4 75
For women, in factories..... do.	3 75	3 50	3 21	4 12	3 93	3 75	3 16	3 00	3 59	3 60

AVERAGE WEEKLY EXPENDITURES, &c.—CONTINUED.

PENNSYLVANIA.												Average of Middle States..	
ARTICLES.	Eric.	Reading.	Norris-town.	Philadel-phia.	Bethle-hem.	South Bethle-hem.	Philadel-phia.	Consho-hocken.	Linwood.	Pittsburg.	Harris-burg.		
	2 adults and 2 children.	2 adults and 3 children.	2 adults and 3 children.	2 adults and 3 children.	2 adults and 3 children.	2 adults and 3 children.	2 adults and 4 children.	2 adults and 4 children.	2 adults and 4 children.	2 adults and 5 children.	2 adults and 1 child.		
	\$560 56	\$563 00	\$427 96	\$710 84	\$437 32	\$419 64	\$824 72	\$803 20	\$590 72	\$1,079 00	\$433 16	\$378 60	
	150 00	100 00	*80 00	113 00	50 00	40 00	160 00	50 00	75 00	275 00	40 00	113 82	
	30 00	.....	.....	.....	2 25	70 00	.....	2 00	2 50	5 00	8 83	24 92
	740 56	773 00	507 96	823 84	489 57	529 64	984 72	655 20	668 22	1,359 00	481 99	786 52	
	15 00	16 00	10 00	25 62	15 00	12 00	20 40	20 00	26 00	22 50	9 45	18 95	
	780 00	832 00	520 00	1,332 24	780 00	624 00	1,080 80	1,040 00	1,352 00	1,170 00	491 40	985 40	
	Total expenses for fifty-two weeks.....												
	Clothing per year.....												
Taxes per year.....													
Total yearly expenses,													
Weekly earnings.....													
Yearly earnings, (fifty-two weeks,).....													

* Estimated.

† Add about \$39 for medical attendance.

IRON SHIP BUILDING.

Average rate of wages (per week of 60 hours) paid to persons employed in the ship building yard and iron works of Messrs. W. Cramp & Sons, Philadelphia, at the close of 1874.

ENGINEERING AND BOILER WORKS.			SHIP BUILDING YARD.		
Average number,	Occupation.	Wages.	Average number,	Occupation.	Wages.
	Machinists:				
16	Best	\$18 00	16	Fitters.....	\$17 00
24	Ordinary.....	15 00	7	Helpers.....	9 00
17	Inferior.....	12 00	5	Angle iron smiths	18 00
23	Helpers.....	10 50	12	Helpers.....	10 00
58	Pattern-makers & joiners,	16 50	14	Ship-smiths.....	18 00
23	Engine fitters.....	16 00	22	Helpers.....	10 00
33	Blacksmiths.....	16 50	115	Riveters	13 50
6	Apprentices	4 00			12 00
47	Laborers.....	9 00	68	Holder-on.....	10 50
21	Riggers.....	10 50	125	Rivet-boys.....	4 00
67	Boiler-makers	13 50	28	Calkers.....	11 00
115	Riveters and calkers.....	13 50	14	Drillers.....	10 50
		12 00	47	Joiners	16 00
68	Holder-on.....	10 50	3	Apprentices	4 00
	Flangers.....	22 00	11	Pattern-makers.....	16 50
125	Rivet-boys.....	4 00	57	Machinists	16 00
129	Laborers and helpers.....	9 00	70	Carpenters	18 00
4	Foremen, (engineer, &c.)	30 00	20	Painters	15 00
9	Foremen, (sundry).....	25 00	21	Riggers.....	10 50
			229	Laborers.....	9 00
			6	Carters.....	10 00
				Furnace-men	10 50
			13	Foremen.....	25 00
885	Average.....	14 08	903	Average.....	12 42

AVERAGE rate of wages per day paid to persons employed in one ship-building yard and iron works at Chester, Pa.

Average No...		Average daily wages.....	Average No...		Average daily wages.....
155	Machinists.....	2 37	48	Fitters.....	\$1 86
50	Machinists' helpers.....	1 33	70	Helpers.....	1 16
10	Pattern makers.....	2 41	15	Shipsmiths.....	2 63
25	Engine fitters.....	2 30	15	Shipsmiths' helpers.....	1 75
53	Blacksmiths.....	2 00	70	Riveter.....	1 75
2	Brass founders.....	2 05	35	Holders-on.....	1 31
20	Iron founders.....	2 20	32	Rivet boys.....	50
24	Iron founders' laborers.....	1 33	15	Calkers.....	1 75
6	Coppersmiths.....	2 60	28	Drillers.....	1 37
23	Boiler makers.....	2 20	103	Joiners.....	2 35
19	Riveters.....	2 10	9	Apprentices.....	87
10	Calkers.....	1 90	10	Pattern makers.....	2 41
5	Holders-on.....	1 55	4	Machinists.....	2 60
11	Rivet boys.....	52 ¹ / ₂	10	Carpenters.....	2 23
57	Laborers and helpers.....	1 25	25	Painters.....	2 25
9	Foremen.....	5 33	12	Riggers.....	1 93
			13	Cartmen.....	1 47 ¹ / ₂
479			15	Furnacemen.....	1 55
			9	Foremen.....	4 37
			538		

PITTSBURG.

MISCELLANEOUS IRON AND STEEL MANUFACTURES.

TABLE showing the average weekly wages of persons employed in iron and steel works in Pittsburg, Pa., in the year 1874.

[Average hours of labor per week, 54.]

Average No. employed..	OCCUPATION.	Wages.	Average No. employed..	OCCUPATION.	Wages.
<i>Iron works.</i>			<i>Iron works—Continued.</i>		
.....	Manager.....	\$28 00	2	Catchers.....	\$14 70
1	Shipping clerk.....	15 00	2	Roughers-up.....	15 00
1	Mill clerk.....	23 00	4	Straighteners.....	4 80
1	Weigh master.....	6 00	2	Shearmen.....	10 00
1	Forge carpenter.....	21 10	3	Bundlers.....	10 50
2	Blacksmiths.....	15 75	2	Heaters.....	23 00
4	Night watchmen.....	12 75	2	Stockers.....	9 30
1	Master engineer.....	28 00	2	Draggers-down.....	10 00
3	Assistant engineers.....	15 00	<i>Steel works.</i>		
1	Machinist.....	21 00	1	Converter.....	12 00
6	Steel shear-men.....	13 50	1	Helper.....	9 00
70	Common laborers.....	8 40	2	Breakers.....	9 00
2	Ore stokers.....	11 25	3	Scrap-shearers.....	7 50
4	Ash wheelers.....	10 50	2	Steel-melters.....	63 00
3	Metal stockers.....	19 25	8	Helpers.....	15 75
44	Boilers, (puddlers,).....	20 35	1	Gas-producer.....	15 75
44	Helpers.....	12 60	1	Ingot inspector.....	10 00
2	Muck rollers.....	30 25	1	Weigher.....	10 00
2	Roughers-down.....	14 00	2	Cogging-hammer men.....	30 00
2	Catchers.....	12 90	2	Helpers.....	12 00
2	Helpers.....	12 90	2	Heaters.....	15 00
2	Hookers-up.....	8 25	1	Engineer.....	9 00
2	Draggers-out.....	13 75	1	Finishing-hammer man..	42 00
2	Weighers.....	22 00	1	Helper.....	15 00
2	Shear-men.....	10 50	2	Inspectors.....	12 00
1	Bar roller.....	39 00	1	Manager.....	20 00
2	Bar-roller heaters.....	29 00	<i>Steel mills.</i>		
1	Rougher.....	19 50	2	Stockers.....	10 00
1	Catcher.....	22 00	2	Heaters.....	18 00
1	Helper.....	14 40	2	Helpers.....	10 50
1	Hooker-up.....	10 00	2	Rollers.....	44 00
1	Stocker.....	11 10	2	Helpers.....	10 50
1	Dragger-down.....	11 10	2	Catchers.....	16 50
2	Pullers-up.....	2 70	2	Helpers.....	10 50
2	Straighteners.....	11 10	2	Heavers-up.....	9 00
2	Shearmen.....	10 50	2	Straighteners.....	11 50
1	Weigher.....	12 60	1	Shear-man.....	18 00
2	Guide-mill rollers.....	30 00			
2	Roughers-down.....	15 60			

GLASS WORKS.

TABLE showing the average weekly wages of persons employed in the window glass works of Messrs. Thomas Wightman & Co., in the city of Pittsburg, Pa., in the year 1874.

[Hours of labor per week, 60.]

OCCUPATION.	Wages.	OCCUPATION.	Wages.
Glass blowers, window.....	\$30 00	Packers.....	\$10 50
Vial blowers.....	25 00	Blacksmiths.....	25 00
Assistants, window glass blowers,	20 00	Carpenters.....	12 00
Batch mixers.....	10 50	Demijohn coverers.....	12 00
Master teasers.....	25 00	Skilled boys.....	6 00
Assistant teasers.....	12 00	Laborers or unskilled workmen,	10 00
Pot makers.....	25 00	Apprentices or boys.....	10 50
Assistant pot makers.....	10 50	Foremen or overseers.....	33 33

NUMBER OF PERSONS IN PENNSYLVANIA ENGAGED IN SPECIAL OCCUPATIONS, WITH AGE AND SEX.

OCCUPATIONS.	Number.....	AGE AND SEX.					
		10 to 15.		16 to 59.		60 and over.	
		Male.	Female.	Male.	Female.	Male.	Female.
POPULATION, 10 years and over.....	2, 597, 809	249, 020	246, 823	946, 418	959, 534	98, 480	98, 934
ALL OCCUPATIONS.....	1, 020, 544	29, 347	9, 640	804, 756	121, 943	52, 106	2, 752
AGRICULTURE.....	200, 051	12, 294	46	218, 247	1, 087	28, 231	146
Agricultural laborers.....	68, 897	12, 294	46	54, 394	1, 087	2, 017	38
Dairymen and dairywomen.....	196			154	33	8	1
Farmers and planters.....	187, 646			160, 706	922	25, 013	105
Farm and plantation overseers.....	68			68		3	
Gardners, nurserymen and vine growers.....	2, 480			2, 203	25	252	2
Stock raisers.....	18			17		1	
Stock-herders.....	19			19			
PROFESSIONAL AND PERSONAL SERVICES.....	283, 000	6, 063	6, 993	175, 800	81, 384	10, 811	1, 949
Barbers and hair-dressers.....	2, 408	16	3	2, 200	96	32	1
Billiard and bowling saloon keepers and employees.....	45			44		1	
Boarding and lodging house keepers.....	767			230	473	30	34
Clergymen.....	3, 841			3, 534	1	306	
Domestic servants.....	84, 343	1, 483	6, 939	4, 938	69, 272	240	1, 451
Hotel and restaurant keepers and employees.....	10, 895	41	7	9, 693	739	390	25
Journalists.....	423			413	1	9	
Laborers.....	140, 835	3, 537	17	128, 965	316	7, 985	15
Laundresses and laundrers.....	2, 276		7	47	2, 092		130
Lawyers.....	3, 253			3, 127	1	125	
Livery stable keepers and hostlers.....	2, 404	45		2, 290		69	
Officials and employees (civil) of government.....	5, 861			5, 325	78	451	7
Physicians and surgeons.....	4, 843			4, 483	37	321	2
Soldiers (U. S. A.).....	263			262		1	
Teachers, (not specified,).....	11, 200		4	4, 098	6, 682	345	101
Teachers of painting, dancing and music.....	121, 812		3	386	393	21	9
TRADE AND TRANSPORTATION.....	121, 253	2, 376	297	111, 180	4, 068	3, 158	174

Trade:—

Traders and dealers.....	37, 393	42	34, 405	1, 313	1, 525	108
Hucksters, peddlers and commercial travelers.....	3, 959	71	5	3, 421	239	173	50
Clerks, salesmen and accountants (in stores).....	28, 479	1, 130	289	24, 453	2, 333	270	4
In banking and brokerage of money and stocks.....	1, 408	1	.....	1, 350	1	56	.....
In insurance.....	926	2	.....	865	12	47	.....
<i>Transportation:—</i>							
Officials and employees of express companies.....	520	1	.....	517	.....	2	.....
Officials and employees of railroad companies.....	19, 666	243	.....	19, 164	6	253	.....
Officials and employees of street railroad companies.....	1, 353	10	.....	1, 331	.....	11	1
Officials and employees of telegraph companies.....	1, 245	35	.....	1, 130	74	6	.....
Carmen, draymen, teamsters, &c.....	12, 546	245	1	11, 864	4	432	.....
Sailors, steamboatmen, watermen, &c.....	7, 640	316	.....	7, 188	.....	130	.....
MANUFACTURES AND MINING.							
Bakers.....	356, 240	8, 614	2, 304	299, 529	35, 404	9, 906	483
Bakers.....	3, 446	85	2	3, 207	38	111	3
Blacksmiths.....	17, 509	71	.....	16, 755	.....	683	.....
Bookbinders and finishers.....	1, 351	32	27	831	442	18	1
Boot and shoemakers.....	19, 631	132	71	17, 201	857	1, 359	11
Brewers and malsters.....	1, 128	6	.....	1, 102	.....	20	.....
Brick and stone masons, marble and stone cutters.....	15, 253	67	.....	14, 699	.....	47	.....
Brick and tile makers.....	1, 826	348	1	1, 400	14	63	.....
Butchers.....	5, 244	64	.....	4, 856	.....	324	.....
Cabinet makers and upholsters.....	5, 894	53	10	5, 527	82	218	4
Car, carriage and wagon makers.....	5, 565	36	.....	5, 371	2	156	.....
Carpenters and joiners.....	39, 255	86	.....	38, 782	.....	387	.....
Cigar makers and tobacco workers.....	4, 862	198	64	3, 592	955	51	2
Clerks and book-keepers (in manufacturing establishments).....	1, 393	15	3	1, 249	38	25	.....
Confectioners.....	.....	3	.....	791	152	34	13
Cooters.....	3, 855	51	.....	3, 474	.....	330	.....
Cotton and woolen mill operatives.....	21, 277	1, 633	1, 548	10, 551	7, 049	423	53
Curriers, tanners and leather finishers.....	3, 500	28	1	3, 205	13	253	.....
Distillers and rectifiers of liquors.....	.....	.....	.....	280	.....	7	.....
Fishermen and oystermen.....	438	5	.....	407	.....	23	.....
Harness and saddle makers.....	3, 061	23	.....	2, 930	1	107	.....
Hat and cap makers.....	510	17	18	251	218	6	.....
Iron and steel workers.....	21, 066	612	1	20, 027	21	370	35
Lumbermen, raftsmen and wood choppers.....	3, 436	20	.....	3, 812	.....	104	.....
Machinists.....	8, 249	21	.....	8, 132	.....	96	.....
Millers.....	4, 944	6	.....	4, 625	195	118	.....
Milliners, dress and mantua makers.....	11, 330	1	121	70	11, 061	2	75
Miners.....	41, 997	2, 092	.....	39, 018	1	886	.....
Painters and varnishers.....	8, 625	88	.....	8, 342	4	91	.....

SELECTED OCCUPATIONS, WITH AGE AND SEX—Continued.

OCCUPATIONS.	Number.....	AGE AND SEX.					
		10 to 15.		16 to 59.		60 and over.	
		Male.	Female.	Male.	Female.	Male.	Female.
<i>Transportation—Continued.</i>							
Paper mill operatives.....	1,388	70	48	679	544	44	8
Plasterers.....	4,961	25	.....	3,941	.....	95	.....
Plumbers and gas fitters.....	1,420	.....	.....	1,403	.....	17	.....
Printers.....	4,474	158	4	4,078	161	73	.....
Quarrymen.....	2,582	431	.....	2,124	.....	24	.....
Saw-mill operatives.....	2,600	67	.....	2,488	.....	44	.....
Ship riggers, calkers, carpenters and smiths.....	1,570	4	.....	1,458	1	92	1
Tailors, tailoresses and seamstresses.....	19,755	118	98	8,138	10,611	571	219
Tinners.....	3,428	15	.....	3,307	.....	76	.....
Wheelwrights.....	3,202	.....	.....	2,985	.....	217	.....

LUMBER.

REVIEW OF THE WILLIAMSPORT TRADE FOR THE YEAR 1875.

Herewith is presented the annual review of the lumber traffic of Williamsport and contiguous points for the year 1875, with careful comparisons with the trade of other years, which will be found valuable for reference. The past year has been marked with a general depression of the trade, caused by the stringency of the times and consequent scarcity of money.

At this season of the year, when manufacturers and dealers are taking an account of stock and settling up their business, the operations in lumber are generally lighter than at any other time of the year. There are very few inquiries now, and the trade is virtually flat, though manufacturers are hopeful that there will be a brightening up in a month or two, which will be encouraging to all concerned.

Owing to the open weather which has prevailed thus far, and the absence of snow, logging operations in the pine forests have been greatly retarded, and as manufacturers generally are inclined to "stock" but lightly, in order to reduce their immense stocks of manufactured lumber on hand, the probabilities are that the stock of raw material for the coming season will be lighter than usual. This has been the policy advocated by the Exchange, and it is pretty generally conceded to be the best for the trade, as long as the lumber business is so depressed. With the return of better times the manufacturers will be enabled to extend their operations, but at present the policy of contraction seems to be the most prudent.

SHIPMENTS FROM CONTIGUOUS POINTS.

The traffic on the Northern Central railroad, from points as far up as Troy, from December 1st to 31st, inclusive, was as follows :

	Cars.	Feet.
South of Troy.....	117	117,750
Previously reported	1,886	17,625,945
Total for 1875	2,003	17,743,695

The bark shipments over the same road for the month were as follows :

	Cars.
Total for December.....	11
Previously reported	369
Total for the year	380

From points on the Philadelphia and Erie railroad, between Lock Haven and Renovo, the shipments from December 1st to 31st inclusive, were as follows :

	Cars.	Feet.
East of Renovo	70	70,500
Previously reported	947	9,220,015
Total for the year	1,017	9,290,515

The traffic from these two points, including that of Lock Haven, is summarized as follows :

	Cars.	Feet.
South of Troy	2,003	17,743,695
From Lock Haven	2,243	39,501,000
East of Renovo	1,017	9,270,515
Total from the three points	5,263	66,515,210

Compare with the business of 1874, the trade of 1875 shows the following gratifying result :

	Cars.	Feet.
South of Troy, 1874	1,307	12,345,360
" " " 1875	2,003	17,743,695
Increase in 1875	696	5,398,335

The trade of Lock Haven compares as follows :

	Cars.	Feet.
Trade of 1874	1,811	34,931,180
" " 1875	2,243	39,501,000
Increase in 1875	432	4,569,820

The shipments from Renovo and points eastward between that place and Lock Haven compare as follows :

	Cars.	Feet.
East of Renovo, 1874	996	9,331,880
" " 1875	1,017	9,290,515
Difference	21	41,365

Here we have an increase of 21 cars, but a decrease of 41,365 feet, as compared with 1874.

LUMBER.

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TRADE OF WILLIAMSPORT.

Herewith is the report of the shipments over the Philadelphia and Erie railroad for the month of December, 1875 :

	Cars.	Feet.
Philadelphia and Erie.....	381	3,811,750
For November.....	495	4,964,850
Decrease in December	114	1,153,100

During the same month the trade of the Catawissa is estimated as follows :

	Cars.	Feet.
Catawissa railroad.....	375	3,900,250
For November.....	485	4,858,625
Decrease in December	110	958,375

The trade of the two roads for 1875 compares as follows :

	Catawissa.	Philadelphia and Erie.
January.....	3,286,850	2,854,880
February.....	3,150,000	2,930,400
March.....	5,380,000	5,389,520
April.....	11,630,000	11,665,500
May.....	8,126,000	8,390,485
June.....	5,500,000	5,721,865
July.....	4,883,300	5,199,000
August.....	6,422,750	6,121,650
September.....	6,519,600	5,954,200
October.....	6,129,700	6,246,460
November.....	4,858,625	4,964,850
December.....	3,900,250	3,811,750
Total.....	69,737,075	69,150,060

The total amount of lumber shipped by the railroads and the canal for 1875, is summed up as follows :

	Feet.
Over Catawissa road.....	69,737,075
Over Philadelphia and Erie.....	69,150,060
By the canal.....	46,244,286
Total for the year 1875.....	185,131,421
Shipments for 1874.....	236,806,289
Decrease in 1875.....	51,674,868

GENERAL SUMMARY.

The trade of the valley may be summarized as follows:

	Feet.
Williamsport	185,131,421
Lock Haven	39,501,000
South of Troy	17,743,695
Renovo	9,290,515
Larry's Creek	2,990,434
Total from all points	254,657,065
Shipments in 1874	298,322,984
Decrease in 1875	43,665,919

BOOM STATEMENT.

There were rafted out of the boom, at Williamsport, for the years given in the table below, the following logs and feet:

YEARS.	No. of logs.	Feet.
1862.....	196,953	37,853,651
1863.....	405,175	76,475,826
1864.....	511,548	96,505,681
1865.....	339,302	72,421,468
1866.....	613,373	118,841,494
1867.....	833,338	173,196,511
1868.....	853,663	105,388,389
1869.....	1,080,511	223,060,306
1870.....	1,099,777	225,180,973
1871.....	852,129	166,661,181
1872.....	1,484,103	297,185,652
1873.....	1,582,460	318,342,712
1874.....	989,586	180,734,382
1875.....	1,096,897	210,746,956
Total	11,938,815	2,302,685,182

Estimating four logs to a tree it required 2,984,704 trees to furnish the stock for the fourteen years embraced in this table. This will give the reader a pretty fair idea how rapidly the great pine forests are being wiped out to supply the trade in lumber.

SHIPMENTS FOR SEVEN YEARS.

The table appended herewith will show the total shipments from Williamsport alone from 1869 to 1875, inclusive:

Years.	Feet.
1869.....	186,676,850
1870.....	250,764,078
1871.....	269,863,392
1872.....	198,506,702
1873.....	243,462,489
1874.....	236,806,289
1875.....	185,131,421
Total.....	1,571,211,221

Here we have the enormous total of a fraction over one and a half billions of feet of lumber forwarded to market from Williamsport alone, within a period of seven years. Were it possible to obtain the entire amount shipped from the valley of the West Branch during that time, it would, in all probability, be found to exceed two billions and a half. But, unfortunately, the figures are not available, no statistical reports having been compiled of the entire traffic.

STOCK ON HAND.

The stock on hand at the close of 1875 is estimated by the following method :

	Feet.
Stock on hand January 1, 1875	160,516,569
Rafted out of the boom in 1875	210,746,956
Logs from Lock Haven by canal, 146,610	29,322,000
Total for 1875	400,585,525
Shipped in 1875	185,131,421
Destroyed by fire	2,000,900
Logs sent below, 29,411	5,882,600
	<hr/> 193,014,021
Stock on hand January 1, 1876	<hr/> 207,571,504

It will be seen by the foregoing calculation that the difference between the amount shipped and rafted out of the boom in 1875 is 25,615,535, which, with the stock on hand at the commencement of last year, and deductions for lumber burned and logs rafted down the canal to Muncy, Watsonstown and other points, leaves the stock on hand January 1, 1876, 207,571,504 feet, as expressed in the table above. This will be still further reduced by logs that escaped and passed below during the last flood, of which estimates of the quantity are not at hand. It is probable, however, that the net stock on hand will not exceed two hundred millions. A careful account of stock on hand will soon be taken by each manufacturer and submitted to Colonel Embick, secretary of the Exchange, to enable him to make his annual statement. That report may differ somewhat from this, as it will embody hemlock, lath, pickets, shingles, &c., a classification which is not attempted in this statement.

With reference to the amount on hand the two years compare as follows :

Stock on hand January 1, 1875	160,516,569
Stock on hand January 1, 1876	207,571,504
Increase in one year	<hr/> 47,054,935

COMPARISON OF SHIPMENTS.

The shipments by railroad and canal from Williamsport compare with the two past years as follows :

	1873.	1874.	1875.
Canal	66, 124, 329	72, 670, 957	46, 244, 286
Catawissa railroad.....	107, 033, 400	92, 710, 348	69, 737, 075
P. & E. railroad.....	70, 304, 760	71, 424, 984	69, 159, 060
Total	243, 462, 489	236, 806, 289	185, 131, 421

The boom contains no logs of any account; consequently, if a very light stock is cut this winter the amount on hand will be largely reduced the present season.

During the past year 146,610 logs were rafted down the canal from Lock Haven, an increase over 1874 of 19,779 logs. At the same time there were sent below from Williamsport, by canal, 29,411 logs, a decrease of 29,289 as compared with last year. This review of the lumber trade of Williamsport, for the year 1875, was furnished by the *Gazette and Bulletin*, of that city.

ESTIMATE OF LUMBER *in the Williamsport market, January 1, 1875, as furnished officially to the West Branch Lumberman's Exchange.*

YARDS.	Pine.	Hemlock.	Lath.	Pickets.
B. C. Bowman & Co.....	3, 006, 821	587, 000	1, 341, 300	50, 000
B. H. Taylor and Son.....	4, 750, 000	1, 000, 000	1, 000, 000	290, 000
F. Coleman	10, 729, 582	177, 780	5, 381, 900	137, 060
Brown, Early & Co.....	6, 347, 571	78, 314	2, 446, 200	143, 240
Ten Eyck, Emery & Co	11, 556, 000	444, 000	1, 180, 000	48, 000
Woolverton and Tinsman	3, 843, 000	50, 000	2, 300, 000	70, 000
Thompson, Harper & Co.....	8, 064, 000	1, 016, 590	1, 253, 700	70, 000
George W. Quinn	3, 300, 000	50, 000	1, 400, 000	130, 000
P. B. Merrill & Co.....	5, 110, 250	.....	390, 700	.....
Eder, Housel and Deemer.....	7, 486, 000	149, 000	958, 800	127, 280
Taber and Goodrich.....	825, 000	1, 150, 000	300, 000	.....
White, Lentz and White.....	10, 264, 500	8, 000	3, 400, 000	526, 435
Canfield and Colton	1, 000, 000	300, 000	200, 000	.....
Finley, Young & Co.....	9, 164, 753	.....	2, 101, 154	71, 550
A. C. Finney & Co.....	2, 294, 538	6, 800	.....	.....
Beaver Mills and Lumber Co	11, 449, 350	80, 000	1, 260, 000	187, 000
Slonacker, Howard & Co.....	4, 500, 000	150, 000	1, 700, 000	140, 000
John A. Otto and Sons	3, 300, 000	300, 000	.....	.....
P. G. Fessler & Co.....	6, 019, 963	104, 356	133, 400	12, 000
Starkweather and Munson	10, 711, 989	20, 000	1, 200, 000	.....
R. M. Foresman.....	3, 800, 000	.....	87, 000	26, 350
Dodge, James and Stokes	25, 084, 000	3, 791, 000	5, 156, 000	203, 800
H. Merriman and Sons	3, 000, 000	220, 000	1, 465, 600	393, 500
S. N. Williams.....	1, 114, 000	.....	.....	.....
Reading, Fisher & Co.....	7, 324, 000	124, 000	1, 851, 000	23, 550
G. W. Maynard & Co.....	8, 194, 600	.....	500, 000	.....
Lutcher and Moore.....	450, 000	2, 500, 000	.....	200, 000
John Du Bois	9, 577, 740	1, 709, 224	1, 212, 600	12, 200
Total, Williamsport	182, 267, 657	14, 015, 974	38, 219, 054	2, 861, 965
Lock Haven	32, 622, 057	1, 771, 800	2, 376, 200	844, 200
Baltimore.....	2, 000, 000	.....	.....	.....
Port Deposit	4, 200, 000	2, 300, 000	.....	.....
Philadelphia	13, 659, 278	1, 448, 565	41, 000	122, 240
Total, January 1, 1875	234, 748, 992	19, 536, 339	40, 636, 254	3, 828, 405

STOCK ON HAND JANUARY 1, 1870.

	Pine.	Hemlock.	Lath.	Pickets.
Williamsport.....	134,166,157	6,098,000	27,627,300	1,653,065
Lock Haven.....	58,500,000			
Baltimore.....	3,500,000			
Port Deposit.....	1,500,000			
Philadelphia.....	11,000,000			
Total, January 1, 1870.....	208,666,157	6,098,000	27,627,300	1,653,065
Total, January 1, 1875.....	234,748,992	19,536,339	40,636,254	3,828,465
Difference.....	26,082,835	13,438,339	13,008,954	2,175,340

STOCK ON HAND JANUARY 1, 1871.

	Pine.	Hemlock.	Lath.	Pickets.
Williamsport.....	122,505,694	5,737,000	33,604,800	2,646,150
Lock Haven.....	22,312,000		2,289,000	720,000
Baltimore.....	3,000,000			
Port Deposit.....	950,000			
Philadelphia.....	10,249,971			245,133
Total, January 1, 1871.....	159,017,665	5,737,000	35,893,800	3,611,283
Total, January 1, 1875.....	234,748,992	19,536,339	40,636,254	3,828,465
Difference.....	75,731,327	13,799,339	4,742,454	217,122

STOCK ON HAND JANUARY 1, 1872.

	Pine.	Hemlock.	Lath.	Pickets.
Williamsport.....	50,550,603	2,832,500	12,687,600	1,687,815
Lock Haven.....	7,179,000		710,000	410,000
Baltimore.....	2,250,000			
Port Deposit.....	5,250,000			
Philadelphia.....	13,486,280			
Total, January 1, 1872.....	78,715,883	2,832,500	13,397,600	2,570,705
Total, January 1, 1875.....	234,748,992	19,536,339	40,636,254	3,828,465
Difference.....	156,033,109	16,703,839	27,238,654	1,257,700

STOCK ON HAND JANUARY 1, 1873.

	Pine.	Hemlock.	Lath.	Pickets.
Williamsport.....	137,949,907	8,807,440	39,966,700	2,273,280
Lock Haven.....	32,638,741	1,930,000	5,163,000	1,503,000
Port Deposit.....	4,000,000			
Baltimore.....	2,000,000			
Philadelphia.....	10,818,990			
Total, January 1, 1873.....	187,407,638	10,737,440	45,129,700	3,776,280
Total, January 1, 1875.....	234,748,992	19,536,339	40,636,254	3,828,465
Difference.....	47,341,354	8,798,899	4,498,446	52,125

COMPARATIVE STATEMENT—STOCK ON HAND JANUARY 1, 1874.

	Pine.	Hemlock.	Lath.	Pickets.
Williamsport.....	220,961,922	19,872,444	58,541,100	3,587,655
Lock Haven.....	34,919,444	3,460,652	4,905,000	1,476,000
Baltimore.....	1,350,000			
Port Deposit.....	5,200,000		600,000	45,000
Philadelphia.....	9,027,948			
Total, January 1, 1874.....	271,459,314	23,333,096	64,046,100	5,108,655
Total, January 1, 1875.....	234,748,992	19,536,339	40,636,254	3,828,405
Difference.....	36,710,322	3,796,757	23,409,846	1,280,250

The above is a correct statement of the amount of Susquehanna lumber, lath and pickets in first hands in the above named markets on the first day of January, 1875.

F. E. EMBICK, *Secretary.*

ESTIMATE OF LUMBER in the Williamsport market, January 1, 1876, as furnished officially to the West Branch Lumberman's Exchange.

YARDS.	Pine.	Hemlock.	Lath.	Pickets.
B. C. Bowman & Co.....	3,085,000	115,000		
B. H. Taylor & Son.....	6,000,000	1,500,000	700,000	100,000
F. Coleman.....	8,747,802		1,487,700	51,580
Brown, Early & Co.....	7,119,500	49,800	2,745,000	197,140
Ten Eyck, Emery & Co.....	6,300,000	260,000		
Woolverton & Tinsman.....	5,311,000	30,000	1,800,000	
Thompson, Housel & Co.....	6,630,000	2,900,000	600,000	130,000
Geo. W. Quinn.....	3,500,000		1,000,000	30,000
P. B. Merrill & Co.....	5,792,850	17,000	1,086,300	173,086
Eder, Housel & Deemer.....	9,216,188	67,000	835,000	47,100
Taber & Goodrich.....	1,450,000	300,000		
White, Lentz & White.....	13,384,900		3,113,800	101,000
Canfield & Colton.....	5,081,000	2,085,500	2,300,000	
Finley, Young & Co.....	6,500,000		3,500,000	115,000
Finney, Williams & Co.....	3,391,888	211,000		
Barrows & Co.....	10,792,798	120,100	2,006,200	
Slonaker, Howard & Co.....	4,500,000	500,000	1,400,000	50,000
John A. Otto & Sons.....	2,577,500	423,000		
P. G. Fessler & Co.....	4,897,122		100,000	
Starkweather & Munson.....	6,650,500	20,500	1,480,000	
Hebard, Foresman & Smith.....	6,556,156	1,046,575	1,786,500	
Dodge, James & Stokes.....	24,152,125	3,649,435	1,000,000	125,000
H. Merriman & Son.....	8,991,000	246,000	1,886,654	154,600
Reading, Fisher & Co.....	3,500,000			
P. Herdie & Co.....	10,499,000	2,000,000	2,700,000	
Lutcher & Moore.....	200,000	5,000,000		30,000
John DuBois.....	6,825,000	1,481,000	535,000	
Bowman, Finney & Co.....	1,940,000		830,000	250,000
Ranstead & Flynn.....	3,957,000			
Reading, Fisher & Reading.....	7,055,833		676,000	
Total, Williamsport.....	194,604,162	22,021,910	33,768,154	1,554,506
Do. Lock Haven.....	32,311,700	4,450,000	3,124,000	936,015
Do. Baltimore.....	1,500,000			
Do. Port Deposit.....	4,000,000			
Do. Philadelphia.....	6,927,150	712,251	675,000	101,180
Total, January 1, 1876....	239,343,012	27,184,161	37,567,154	2,591,701

STOCK ON HAND JANUARY 1, 1870.

	Pine.	Hemlock.	Lath.	Pickets.
Williamsport.....	134,166,157	6,098,000	27,627,300	1,653,065
Lock Haven.....	58,500,000			
Baltimore.....	3,500,000			
Port Deposit.....	1,500,000			
Philadelphia.....	11,000,000			
Total January 1, 1870....	208,666,157	6,098,000	27,627,300	1,653,065
Total January 1, 1876....	239,343,012	27,184,161	37,567,154	2,591,701
Difference	30,676,855	21,086,161	9,939,854	1,938,636

STOCK ON HAND JANUARY 1, 1871.

	Pine.	Hemlock.	Lath.	Pickets.
Williamsport.....	122,505,694	5,737,000	33,604,800	2,646,150
Lock Haven.....	22,312,000		2,289,000	720,000
Baltimore.....	3,000,000			
Port Deposit.....	950,000			
Philadelphia.....	10,249,971			245,133
Total January 1, 1871....	159,017,665	5,737,000	35,893,800	3,611,283
Total January 1, 1876....	239,343,012	27,184,161	37,567,154	2,591,701
Difference	80,325,347	21,447,161	1,673,354	1,019,582

STOCK ON HAND JANUARY 1, 1872.

	Pine.	Hemlock.	Lath.	Pickets.
Williamsport.....	50,550,603	2,832,500	12,687,600	1,687,815
Lock Haven.....	7,179,000		710,000	410,000
Baltimore.....	2,250,000			
Port Deposit.....	5,250,000			
Philadelphia.....	13,486,280			472,890
Total January 1, 1872....	78,715,883	2,832,500	13,397,600	2,770,705
Total January 1, 1876....	239,343,012	27,184,161	37,567,154	2,591,701
Difference	160,627,129	24,351,661	24,169,554	20,996

STOCK ON HAND JANUARY 1, 1873.

	Pine.	Hemlock.	Lath.	Pickets.
Williamsport.....	137,949,907	8,807,440	39,966,700	2,273,280
Lock Haven.....	32,638,741	1,930,000	5,163,000	1,593,000
Baltimore.....	2,000,000			
Port Deposit.....	4,000,000			
Philadelphia.....	10,818,990			
Total January 1, 1873....	187,407,638	10,737,440	45,129,700	3,776,280
Total January 1, 1876....	239,343,012	27,184,161	37,567,154	2,591,701
Difference	51,935,374	16,446,721	7,562,546	1,184,579

STOCK ON HAND JANUARY 1, 1874.

	Pine.	Hemlock.	Lath.	Pickets.
Williamsport.....	220,961,922	19,872,444	58,541,100	3,587,655
Lock Haven.....	34,919,444	3,460,652	4,905,000	1,476,000
Baltimore.....	1,350,000			
Port Deposit.....	5,200,000		600,000	45,000
Philadelphia.....	9,027,948			
Total January 1, 1874....	271,459,314	23,333,096	64,046,100	5,108,655
Total January 1, 1876....	239,343,012	27,184,161	37,567,154	2,591,701
Difference.....	32,116,302	3,851,065	26,478,946	2,516,954

COMPARATIVE STATEMENT—STOCK ON HAND JANUARY 1, 1875.

YARDS.	Pine.	Hemlock.	Lath.	Pickets.
Williamsport.....	182,267,657	14,015,974	38,219,054	2,861,965
Lock Haven.....	32,622,057	1,771,800	2,376,200	844,200
Baltimore.....	2,000,000			
Port Deposit.....	4,200,000	2,300,000		
Philadelphia.....	13,659,278	1,448,565	41,000	122,240
Total January 1, 1875....	234,748,992	19,536,339	40,636,254	3,828,405
Total January 1, 1876....	239,343,012	27,184,161	37,567,154	2,591,701
Difference.....	4,594,020	7,647,822	3,069,100	1,236,704

The above is a correct statement of the amount of Susquehanna lumber, lath and pickets in first hands, in the above named markets, on the first day of January, 1876.

F. E. EMBICK, *Secretary.*

PORT ALLEGHENY, *July 12, 1875.*

W. HAYES GRIER, *Harrisburg, Pa.:*

DEAR SIR:—Yours of 9th inst. came duly to hand, and in reply would say I will send you the estimate of M'Kean county. I have not any way of knowing the amount manufactured in Potter and Warren counties.

Hemlock shipped by railroad, canal, and rafted in river.....	63,000,000
Pine shipped by railroad, canal, and rafted in river.....	5,000,000
Oak, maple, ash and cherry.....	8,000,000
Hemlock for home use.....	15,000,000
Pine shingles.....	10,000,000
Hemlock shingles.....	8,000,000
Hemlock bark, (cords).....	60,000

The above is as near an estimate for the years 1874 and 1875 as can be estimated.

Respectfully yours,

A. M. BENTON,

per A. V. JACKSON.

Barrows & Co., Williamsport, Pa., report that they manufacture 15,000,000 feet white pine and hemlock, valued at \$300,000. Give employment to about 100 men for 240 days in the year. Average daily wages, including foremen, enginemmen, salesmen, book-keeper, filers, mechanics and 92 laborers, \$2 12½.

The Bellefonte and Snow Shoe railroad company manufactured in 1874, 1,501,989 feet of pine and hemlock, valued at the mill at \$21,069 85. They employed, for eight months, an average of about 10 men, and for four months and average of 25 men. Wages—1 boss sawyer, at \$3 50 per day; 5 mill hands, at \$2 00; 4 teamsters and board pilers, at \$1 75, for eight months. Twenty-five men, for four months, engaged as loggers and choppers, at the rate of \$1 75 per day.

S. W. Buck, Esq., of Bradford county, sends us the following statement concerning the manufacture of lumber in that county:

Schroeder Mining and Manufacturing company make.....	3,000,000 feet
Satterlee & Russell.....make.....	1,000,000 “
E. Walker & Co.....make.....	1,000,000 “
J. F. Means.....makes.....	500,000 “
Shaw & Co.....make.....	1,000,000 “

The lumber is worth, on an average \$12 per thousand. Over 300 men are employed in the business in the county.

J. L. & W. T. Grant, manufacturers of lumber, flour, feed, etc., Stevensville, Bradford county, Pa. Production, 1,000,000 feet of lumber; value, \$80,000. Manufacture 25,000 bushels of grain; value, \$20,000. Whole number of men employed, 25, and are distributed as follows: 10 men in the mill and 15 in woods, cutting and hauling logs.

The firm do their own “bossing,” and employ carpenters, millers, etc., who do their work under instruction from the owners of the establishment. Average wages of men per day, \$1 37. Grist mill in operation the whole year. Manufacture lumber from April to December.

This Bureau is under many obligations to S. W. Buck, Esq., of Leraysville, Bradford county, who has furnished statistics upon various topics pertaining to the industries of that county. He says, in relation to the report of Messrs. J. L. and W. T. Grant, that it is only one of a number of the same class, located in nearly every township in the county. There are many small manufactures of various kinds, and an attempt to get full statistics of this annual production would consume a month's time in visiting them and getting their reports.

This is an agricultural and grass growing section in Eastern Bradford; we have no mines or extensive manufacturing, but in the aggregate would foot up a handsome amount to be placed to the credit and industry of our people.

Manufacturing butter tubs and firkins for home consumption amounts to a large item in a dairy community like this. Besides small leather manufactories, sash, blinds and doors are made to a considerable extent. Agricultural implements are manufactured in LeRaysville, in the eastern portion of the county, to the amount of \$20,000 per annum. Besides, the same village contains a large establishment for the manufacture of all kinds of furniture.

I have had conversation with a number of well-informed gentlemen in the different townships, and the conclusion arrived at, that the value of the articles manufactured in Eastern Bradford will reach annually one million dollars. By Eastern Bradford is meant that portion of the county lying east of the Susquehanna river.

THE DESTRUCTION OF OUR FORESTS.

The territory of the United States so abounds in coal supply that the desirability of preserving the forests of the country for the purpose of furnishing fuel, which has become a very important economic question in countries less favored with substitutes for wood, will hardly be seriously entertained here. The superiority of coal as a steam producer, its abundance, accessibility and cheapness are so assured, and the probability of a failure of the supply is so remote that a return to the general use of wood for fuel does not enter into our calculations of future contingencies. Even those parts of our territory most remote from the coal fields can be furnished with coal at prices not greatly in advance of wood fuel when the latter resource becomes too valuable for burning or too scarce to afford an adequate supply.

But there are other aspects of the destruction of the forests of the United States, which, broadly considered, are well calculated to arrest attention and to suggest measures of precaution. Nothing is more demonstrable than that a country denuded of its trees is on the high road to complete desolation. The evidence is conclusive that the destruction of forests has a prejudicial effect upon the climate. It operates to diminish the rainfall in quantity and to destroy the natural store-house prepared by nature for retaining the surplus water of the rainy seasons and gradually yielding up the supply to the draining streams. When the forests are removed the rains run off as fast as they fall and carry with them into the beds of the streams the fertile top soil. It is the common talk of old and observant men living along the Susquehanna and Delaware rivers that the floods are more sudden and disastrous than they were forty or fifty years ago. The streams are smaller and more inconstant that feed these rivers. In Ohio the same state of things is beginning to be remarked. In Massa-

chusetts, Maine and New Hampshire there is not only a sensible diminution in the volume of water in the streams, but droughts are frequent, the rainfall and the snowfall is smaller, the summers are hotter and the winters colder. The cultivation of fruits that formerly withstood the severity of the climate is now abandoned. That these results are not due to any ordinary climatic vicissitude, but are within the control of human agency, is very easily established. The same results have always followed the same causes in all parts of the habitable earth. Several of the West Indian islands have been made barren and arid by the destruction of the forests and are now seldom refreshed by rain. Countries which were formerly the abodes of millions of prosperous people, like Egypt, Syria and Palestine, are now rainless deserts. Their Roman and Arab conquerors ruthlessly destroyed their forest trees. The remains of long lines of aqueducts, canals, cisterns and artificial pools in spaces of land now waterless, waste and deserted, sufficiently attest their former plentiful supply of water and the fertility of the soil and wealth and industry of the population.

The magnificence and extent of the forests of this country are so imposing that the capacity of the population for their destruction has been seemingly insignificant by comparison. But every farmer in the country has been from the outset at war with the trees, which he has been ignorantly taught to consider as cumberers of the earth. Within the past thirty years a new and ravenous timber destroyer has made its appearance and added its ravages to the efforts of lumbermen, farmers and frontiersmen. Steam railroads are such enormous wood consumers that they soon make marked inroads upon the wood supply in any district or county they traverse. In the shape of bringing timber, ties and fuel, the yearly demand for railway consumption in this country is so excessive that it is beginning to take the form of a most serious economic question. In Pennsylvania, according to the report of the Auditor General for the year 1874, there were 4,392 miles of main line of railway in operation in Pennsylvania, with 943 miles of double track, and 1,300 miles of sidings. Adding the double track to the length of main line, and leaving out of consideration the sidings for the purpose of this article, we have 5,335 miles of railroad track to be furnished with cross ties and timber needing renewal as often as once in five years. Allowing 2,200 ties to a mile of road, it takes 13,337,500 ties to furnish the railways now in operation in this State for five years, or 2,667,500 per year. This form of consumption attacks the hard woods and the young timber, and allowing two ties to the tree, calls for the annual destruction of 1,333,750 trees of the varieties in demand for this purpose. There is an average of one wooden bridge to every three miles of railroad, besides the wooden cars, passenger, freight and water stations and engine houses and shops, which are to be considered in the consumption of railroads for per-

manent way, and which are in constant process of repair and replacement. Of late years, and partly in consequence of the scarcity and dearth of wood fuel near the lines of railroad, coal has largely displaced it for the purpose of fuel for locomotives. Leaving out of consideration this item of wood consumption, how long can the forests of Pennsylvania supply the increasing yearly demand for railroad consumption?

The large lumbering and tanning manufactories in different parts of the State are stripping large tracts of country of their forests. The manner of their operation is such as to insure a ravage more complete and desolating than that inflicted in the first instance by the woodsmen who cut out the pine and hemlock trees. The tops and refuse portions of these trees are left where they fall, and becoming dry and seasoned add tenfold fury to the forest fires which yearly desolate the wooded tracts that have been partially spared by the wood cutters. The destruction of the pine and hemlock forests of the State is something almost appalling to consider, when we reflect that this source of wealth can never be replaced. It is not probable that any man in Pennsylvania, since it was first opened to the incursion of European settlers, has ever thought of replanting a pine or hemlock forest. The short sightedness, in a merely commercial point of view, of the sweeping destruction that is going on along the tributaries of the Allegheny and the West Branch of the Susquehanna, which comprise in the area, they drain the last considerable supply of pine timber in any of the north-eastern States, is something to be wondered at. The standing trees would have made more money for their owners than has been made out of lumbering operations since the end of the war, by the steady advance in the value of timber lands, based on causes incident to the constant growth of the country, and which are permanent in their nature.

But the time must soon come when the owners of forest land will be held to account for the ascertained results which flow from their good or bad management affecting the health and well being of all the population of the State. If it is important that our streams should not be dried up, our cultivated lands become barren, and one of the prime necessities of our comfort destroyed, without any adequate compensation for the loss, then some remedy must be devised to preserve the trees we have left, and to replace, to some extent, what is lost. The remedy must come through legislative action. In a case of this kind, individual effort is futile. The terrible destruction from forest fires often originates in wantonness or carelessness. In either case it should be severely punished. Railway companies are responsible, in many instances, for fires in the woods, and should be legally accountable for damages. The planting of forest trees might be encouraged by discriminating taxation, and what are known as the "unseated lands" of the State, subjected to some restricted legislation which should

bind the parties acquiring title to the preservation of a certain portion of the standing trees thereon. The novelty of such restrictions should not blind public men to their necessity. The people of the United States are beginning to experience some of the discomforts of older countries, and they ought to be wise enough to pattern by the example of such nations as the Germans and French, who have long appreciated the necessity of a certain supply of wooded country and taken energetic and successful measures to insure their people against the immeasurable disaster which is sure to follow the complete destruction of the forests.

THE FORESTS OF PENNSYLVANIA FROM AN AGRICULTURAL STAND POINT.

The following communication, from George Rhey, Esq., Vice President of the State Agricultural Society, in answer to an inquiry of this Bureau, will explain, in a brief and concise manner, the annual drain upon our forests for fencing, and the cost to the farmers of the State in maintaining their enclosures :

MILLWOOD, WESTMORELAND COUNTY, PA.,
February 12, 1876.

W. HAYES GRIER :

DEAR SIR :—Without any specific information, giving the length and cost of fences surrounding the farms and dividing them into fields, in Pennsylvania, it is safe to assume they will measure at least 150,000,000 rods, and that the average cost of making them is not less than \$1 50 per rod, aggregating \$225,000,000. The annual outlay for repairs to these fences, and interest on their cost, amounts to \$36,000,000. They occupy one-tenth of all the cleared land of the State, and to prevent the growth of useless and injurious weeds and bushes on the ground they occupy, requires nearly as much labor per acre as it does to grow the crops on the balance of the farms. Estimating the interest on the value of the land thus occupied, and the cost of the labor required each year to destroy weeds and bushes at \$10,000,000, we have an aggregate annual outlay of \$46,000,000 for fencing the farms of Pennsylvania. Large as this sum appears, it does not exceed the reality. This annual tax upon the labor devoted to agriculture, will increase in amount in the future, unless fences can be partially or entirely dispensed with. Their sole use is to keep the farm stock of neighbors from depredating upon the crops of each other. There are two other modes by which that result could be accomplished. One is to confine all farm stock to the stable and stable yard, and transport their feed from the place of its production to them ; and the other is to accompany the herds with a herds-

man when sent out to pasture. The cost of either mode and the value of the advantages, if any, would determine which plan would result most advantageously to the people of the State. The solution of this question involves too wide a range for investigation to be successfully undertaken by me in the time allowed. With ample time at my disposal, I would be pleased to undertake it. When it is remembered that at least two-thirds of our population is engaged in the cultivation of the soil, and that the health, the happiness and the prosperity of the entire people is mainly dependent upon their labors, the importance of providing them with the knowledge requisite to enable them to discharge their duties with the greatest success is very obvious. I will be pleased to resume the consideration of this subject when leisure permits, and assure you of the earnestness of my wish to do anything in my power to add to the prosperity and happiness of my fellow farmers.

Respectfully,
GEORGE RIEY.

TANNERIES.

But very few reports were received by this Bureau in relation to this extensive branch of Pennsylvania's industry. At the late Tanners' Convention, held at Harrisburg, an effort was made to obtain information, but from some unexplained reason the parties approached failed in their duty. We append herewith a few reports, and an article on "The Trade," written by George B. Kerper, Esq., of Fulton county :

ADAM INNES, BRADFORD COUNTY ; BOWEN & INNES, TROY, PA., MANUFACTURERS
OF LEATHER.

	No. hides.	No. pounds.
At Scotia tannery, Granville township.	7,917	277,100
At Caledonia tannery, Canton township.	10,457	366,000
At Trojan tannery, Troy township.	4,110	143,850

Whole number of persons employed : Scotia, 17 ; Caledonia, 17 ; Trojan, 7.

OCCUPATION.	Men	Average wages daily	Average time in operation during year.
<i>Scotia :—</i>			
Beam hands	3	\$1 50	1 year.
Engineer	1	1 50	"
Yard hands	3	1 38	"
Loft hands	3	1 38	"
Leaches and bark mill	2	1 38	"
Teamsters	3	1 38	"
Carpenters	1	2 50	"
Foreman	1	3 00	"
<i>Caledonia :—</i>			
Foreman	1	3 00	
Engineer	1	1 50	
Carpenter	1	2 50	
Beam hands	3	1 50	
Yard hands	3	1 38	
Loft hands	3	1 38	
Leaches and bark mill	2	1 38	
Teamsters	2	1 38	
<i>Trojan :—</i>			
Foreman	1	3 00	
Engineer	1	1 50	
Beam hands	1	1 50	
Yard hands	1	1 38	
Loft hands	1	1 38	
Leaches and bark mill	2	1 38	

(Signed)

ADAMS INNES.

Remarks.—The value of annual products I have left blank, as it is impossible to tell, on account of the depression in the leather market for the last two years. You will notice that the average time in operation during the year is marked full. The reason is that only an occasional day is lost during the year, with the exception of holidays.

THE TOWANDA TANNING COMPANY—MANUFACTURERS OF SOLE LEATHER.

Number of sides.....	39,892
Pounds of leather	743,748
Amount in value.....	\$208,249 44

Average number of persons employed, 75, as follows: 1 foreman, average daily wages, \$5 00; 2 carpenters, average daily wages, \$2 25; 72 laborers, average daily wages, \$1 50. In operation during the whole year.

(Signed)

JOSEPH POWELL, *Treasurer.*

MISCELLANEOUS TANNERIES IN BRADFORD COUNTY WITH
NO TITLE.

Number of hides.....	12,500
Pounds of leather	225,000
Amount in value.....	\$63,000 00

Average number of persons employed, 25. Average daily wages, \$2 00. In operation six months. Superintended and operated principally by the owners.

WILCOX TANNING COMPANY, WILCOX, ELK COUNTY, PA.

Production for the year 1875, 2,500,000 pounds of leather. Value, \$600,000. Whole number of persons employed, 300. Wages per day—3 foremen, at \$3; 3 foremen, at \$3; 3 carpenters, at \$2; 294 laborers, at \$1 50. Average hours worked per day, eleven. In operation during the entire year.

(Signed)

WILCOX TANNING COMPANY.

NORTH STAR TANNERY.

A. J. North, Mercersburg, Franklin county, Pa. Production for the year 1874, 4,000 sides sole leather, (80,000 pounds.) Value, \$30,000. Whole number of persons employed, 8—3 beam hands, 2 yard hands, 1 roller, 1 bark grinder, 1 engineer, 1 apprentice. Average wages per day, \$1 50. In operation during the whole year.

(Signed)

A. J. NORTH.

A. L. HENCH, ALUM BANK, BEDFORD COUNTY, PA.

Production for the year 1874, 1,900 sides sole leather, valued at \$13,700. Whole number of persons employed, 8. Wages per day—3 beamers, at \$1 30, for 10 months; 2 yard men, at \$1 23, for 12 months; 2 engineers at \$1 35, for 12 months; 1 rollerman, at \$1 35, for 10 months. Remarks: My tannery commenced to put in hides in January, 1874.

The above shows only the amount shipped to market during three months, October, November and December, of that year.

The capacity of my tannery is 800 sides heavy oak sole leather, which will be worth \$60,000.

(Signed)

A. L. HENCH.

ROWLAND AUSTIN'S TANNERY, HARRISONVILLE P. O., FULTON COUNTY, PA.

Value of leather manufactured for the year 1874..... \$44,000 00

Whole number of persons employed, 8 to 9. Daily wages, \$1 25. Average time worked, 10 to 11 hours daily. In operation the whole year.

(Signed)

ROWLAND AUSTIN.

C. BUCK'S TANNERY.

Number of sides oak sole leather manufactured for the year

1874.....	5,000
Value.....	\$3,500 00

Number of persons employed, 5. Average daily wages, \$1 25. In operation the whole year.

The tannery is located in Unionville, Centre county, and the post office address is Fleming, Centre county, Pa.

(Signed)

C. BUCK.

LEAS M'VITTY & SON'S TANNERY, SATILLO, HUNTINGDON COUNTY, PA.

Sides of sole leather manufactured during the year 1874....	12,000
Value	\$86,000 00

Whole number of persons employed, 12 men : Engineers, 2 ; beamsmen, 3 ; rollerman, 1 ; yardsmen, 2 ; leach hands, 2 ; foreman, 1 ; superintendent, 1. Average daily wages, \$1 27. In operation during the whole year.

We make heavy oak sole leather from Texas hides, and consume 2,000 cords of bark per annum, worth \$7 00 per cord.

LEAS M'VITTY & SONS.

Note.—We have received from Messrs. Humphrey Bros. & Tracy, of Towanda, Pa., a report of the sales made at their boot and shoe manufactory, which amounts to \$246,269 ; but no statement accompanied it giving the number of men employed or their average daily earnings.

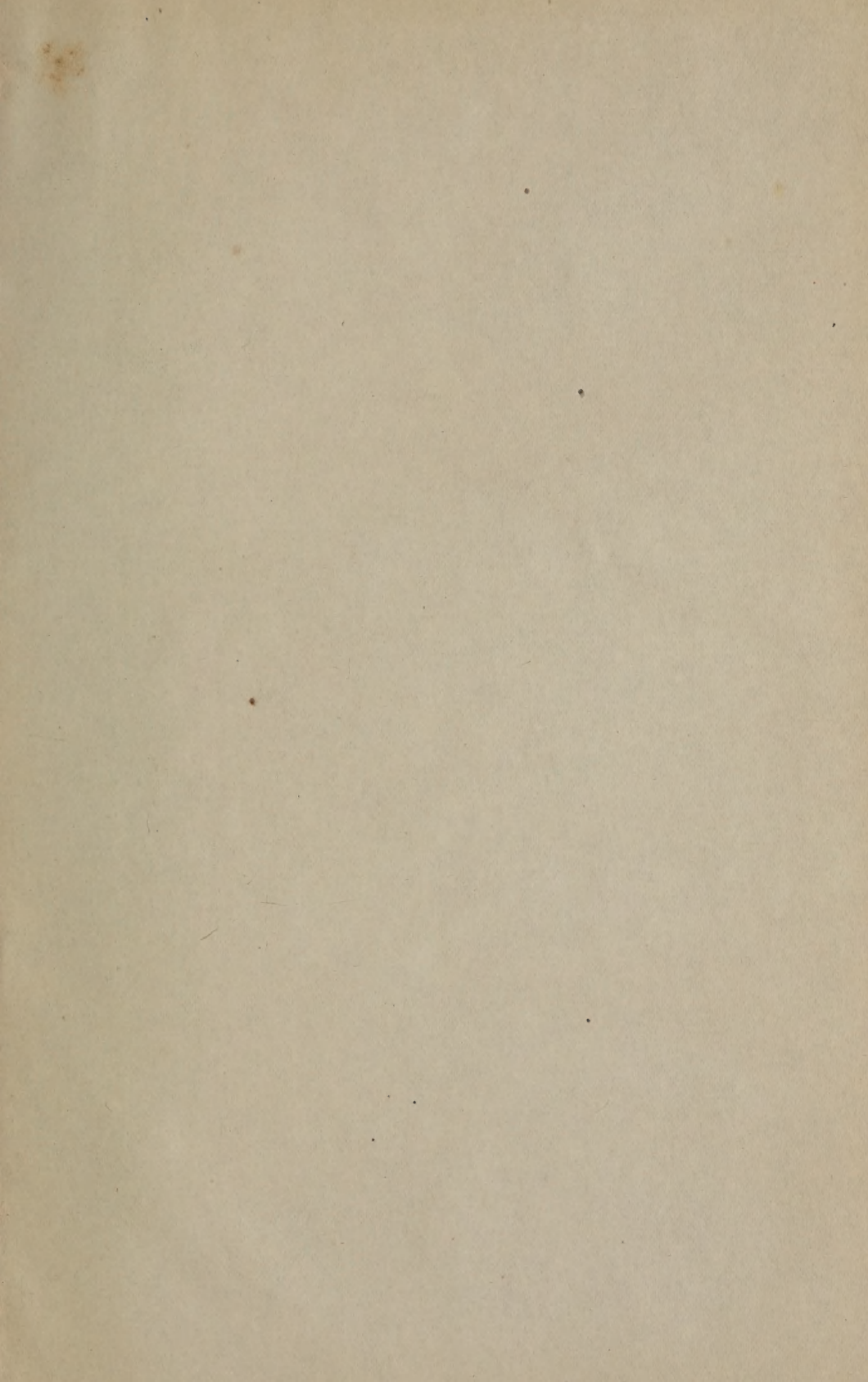
OUR TRADE—ITS WANTS AND PROSPECTS HOME AND ABROAD.

Representing as we do a trade in which we have over 800 establishments, employing nearly 5,000 hands, with a capital of \$12,000,000, and producing \$20,000,000 worth of leather annually, we are to-day in a position occupied by very few of the manufacturing interests of this State where so much capital is at stake. We are very much like stock brokers—we buy too much stock on margins ; we have been bulling the markets until we have not only wiped out the little profit we have had in the past, but are very likely to wipe ourselves out to such an extent that what little there is left of us will have learned a lesson which will do us much good for years to come. Instead of being bulls, to-day we are a unit as bears, and it is to be hoped that this feeling is not temporary only, but will make us a unit throughout the whole country, and give us an organization so strong and so well posted on the wants of the trade that the present stagnation arising from over-production will cease to be an every-day occurrence and become a thing of the past. Let us make up our minds that we had better do little at a profit than much at a loss. Let us make quality and not quantity our aim in business, and when we have accomplished this end and secured the co-operation of the tanning interests throughout the country, we shall be prosperous and happy, and receive a fair compensation for our labor and capital. We shall be able to meet each other with smiling faces instead of the solemn, care-worn and billious countenances we now present. We shall not be complaining of the injustice of commission merchants and salters, for the fault is not theirs ; it is ours, and let us as a body accept the situation and determine to meet it. The trouble is not that the commission merchants receive too much pay for the sale and guarantee of our stock. The fault is not so much with the butcher or salter in being able to dispose of damaged and unmerchantable hides at full rates as it is with tanners in making the purchase. The majority of the

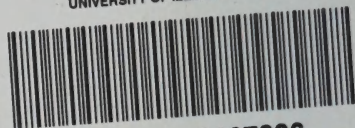
merchants have the success of our trade as much at heart as we have ; our interests are mutual, and when leather is active and business prosperous we all benefit by it ; and in times of depression like the present they have their troubles in making sales to reliable parties, and must, in many cases, take the chances of making bad debts from which they receive nothing, while at the worst we are likely to receive the hair and glue stock as compensation for bark and labor. So as long as we are determined to do more business than our capital permits, and manufacture more leather than we can sell ourselves, so long we must ask the aid and co-operation of the commission merchants, and it is for us as individual tanners to decide whether our profits will allow us to do this or not.

As soon as we cease to produce largely the demand for hides will fall off and the butchers and salters will be thrown into our present position and be compelled to sell hides in merchantable condition, or the loss will be theirs, while as long as we continue to make an overproduction of leather the loss must necessarily be ours. Many will contend that the home demand for hides, at this time, has nothing to do with the high prices, from the fact that the foreign demand is absorbing all surplus stock and keeping up the figures, which is unfortunately the case at present ; but this is likely to be temporary, or, if it should be otherwise, it may be from the fact that they are able to dispose of their stock at paying prices, or, like American tanners, are speculating on the future ; if so, that is their funeral, and we have enough burials in the home trade to attend to, and can afford to be generous in this matter and let our English friends have all the high-priced hides until we can keep them at a profit. Perhaps the secret is that they understand the nature of the leather required for the foreign market, and it would be far better for us to study this trade first, and then place ourselves in position to meet the demand. The enterprise of several of our western tanners, who have established their leather abroad at paying prices, has demonstrated the fact that the time is not far distant when we shall be able to work up a large foreign trade. It is for the tanners of Pennsylvania to decide how soon they will make the move in this direction and how much of the trade we shall be able to control. It is far more important for us to-day to find new channels for our stock, and thus relieve our markets from its heavy burden, than to talk of the best modes of manufacturing more. To accomplish this we must post ourselves as to the wants of the foreign markets. From what we have learned on the subject we find they prefer leather from cow hides ; it must be fleshed very clean, it must be firm and solid, and should be placed in the hands of parties who make a business of pounding stock before it is offered for sale. Leather suitable for this trade will yield a handsome return, while stock not coming up to their standard of first class had better be sold at home. The dis-

cussion on this subject will enlighten you more fully as to all the requirements. What we most require to give stimulus to the depressed condition of our trade is to manufacture less leather, keep what leather we have out of the market until there is demand for it, buy none but good hides at fair rates, and failing in this, buy none at all; while in the meantime, to keep us out of mischief, let us join in endeavoring to find new channels for our leather, and reduce the stock on hand until we can realize prices that will give us the profit our labor and capital justly deserve.



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